CONTENTS

SAMS PHOTOFACT* SET No. 368

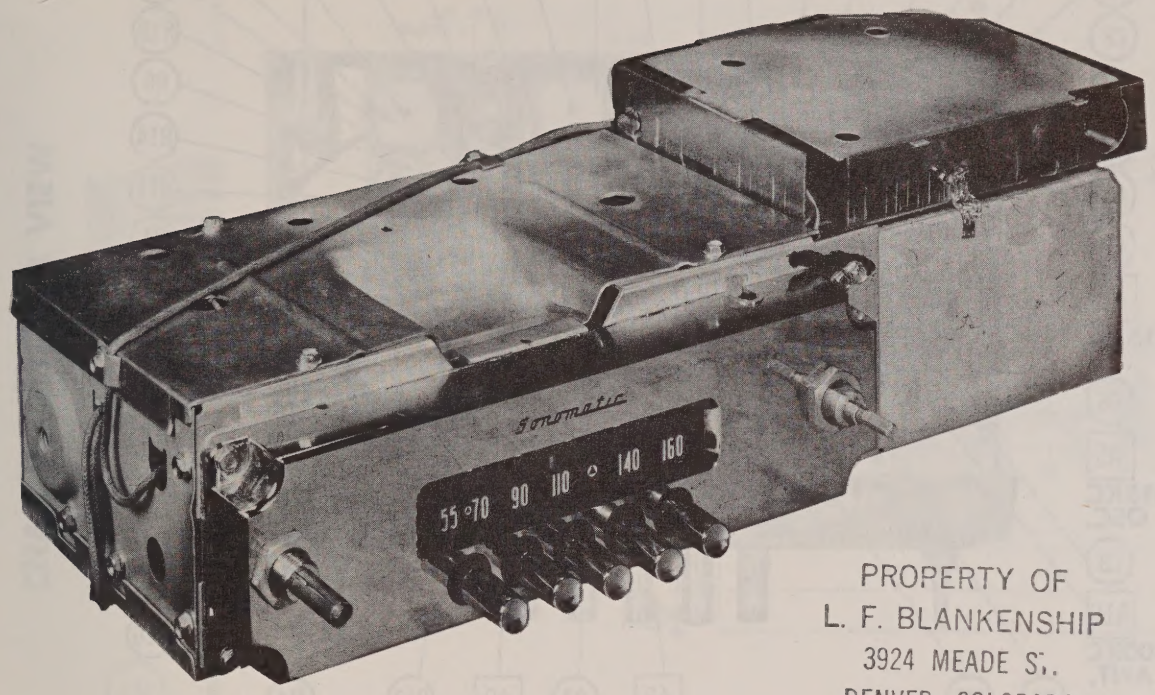
*TRADEMARK

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TRADE NAME	MODEL	SET AND FOLDER NO.
Buick	981-814	368-1
Craftsmen	CT-4	368-2
Columbia Records	514	368-3
Dejur	TK-820, TMB-820 Recorder	368-4
Dumont	Ch. RA380, RA381 Tel. Rec.	368-5
Magnavox	Ch. CR-715AA, AB, BB	368-6
Monitoradio	MRC-33	368-7
Motorla	BKA6X, BKA7X, CTA6X, CTA7X, PCA7X, 597X	368-8
Motorola	Y17T27CH, Y17T28-1, -2, -3, 17T27CH, 17T28-1, -2, -3 (Ch. TS-422, Y) Tel. Rec.	368-9
Packard	484649	368-10
RCA Victor	8-X-5 Series, 8-X-6 Series, 8-X-51 (Ch. RC-1170, RC-1178)	368-11
Sentinel	Ch. U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series) Tel. Rec.	368-12
Silvertone	7057, 7058 (Ch. 528.46000, 528.46001)	368-13
Silvertone	Ch. 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210 Tel. Rec.	368-14
Zenith	YP7L	368-15

© 1957 Howard W. Sams & Co., Inc.

BUICK
MODEL 981814



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

BUICK
MODEL 981814

TRADE NAME	Buick Model 981814 (For 1957 Buick Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Seven)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12BF6 Det.-AVC-AF Amp., (2) 12V6GT Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	550KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control to "Treble".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400% Mod.)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
	Check setting of oscillator core (A8). Rear of core should be 1 5/8" from mounting end of coil form.						
2	82MMF	High side to antenna receptacle. Low side to chassis.	1615KC	High frequency end stop	Across voice coil	A5, A6, A7	Adjust for maximum output
3	"	"	600KC	Tune to 600KC signal	"	A9, A10	"
4	"	"	1615KC	High frequency end stop	"	A6, A7	"
5	"	"	600KC	Tune to 600KC signal	"		If necessary, adjust dial pointer adjustment screw so that pointer coincides with 600KC on dial.
6	With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, adjust A7 for maximum volume.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton to the left and out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amplifier	12BF6	

ITEM No.	USE	TYPE	NOTES
V5	Output	12V6GT	
V6	Output	12V6GT	
V7	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-120	CO990	FP345, 8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

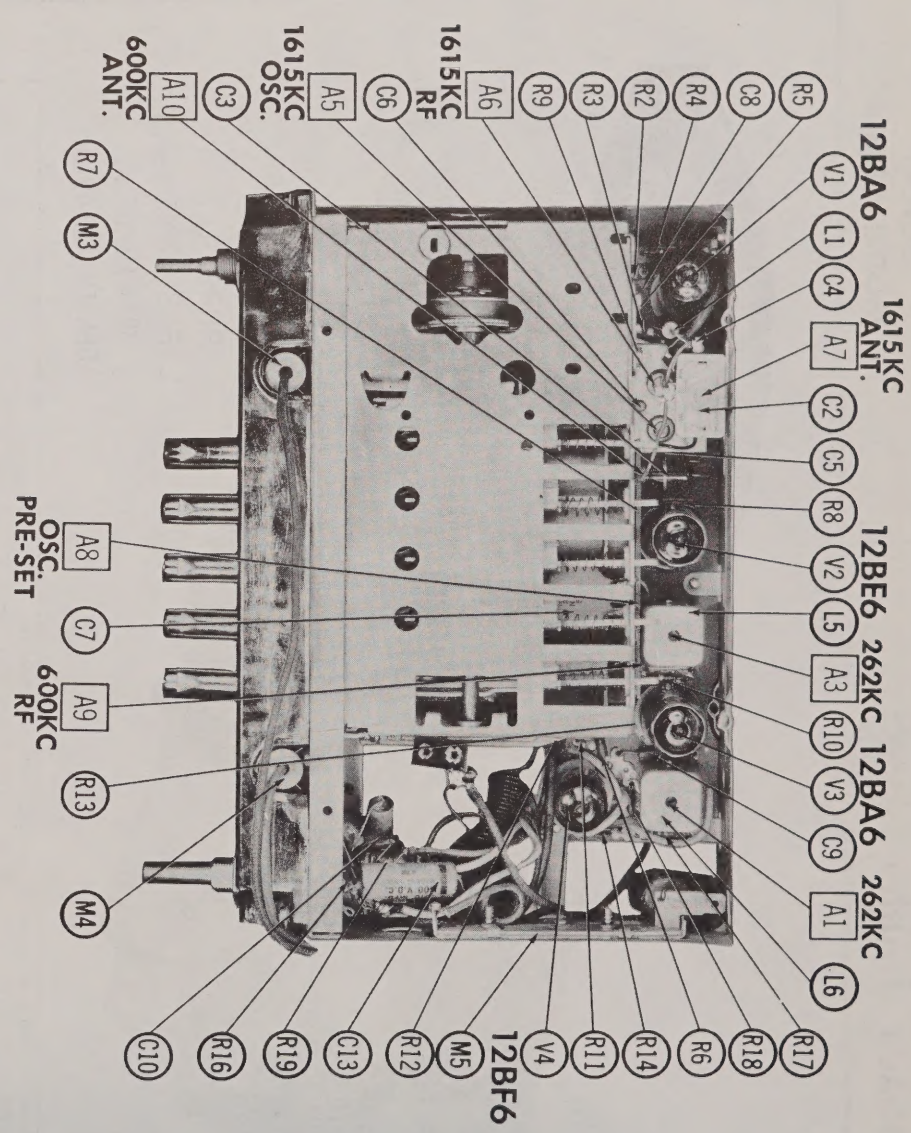
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2A			7269079							
B										
C3	.047	200	6612	BPD-05.	DF-503	CUB4S47		GEM-2147	2TM-S47	
C4	15		6361	BPD-000015	DD-150	L10Q15	ED-15	UC-5415	5GA-Q15	
C5	39		6366	BPD-000039	DD-390	L10Q39	ED-39	UC-5439	5GA-Q39	
C6A										
B										
C			7268828							
D										
C7	200		7268904							N150
C8	.047	400	6612	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C9	220	500	G-220	1464-00022	D6-221	5W5T22	ED-220	UC-5322	1FM-322	
C10	100		G-101	N750-S1100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C11	.002	600	6628	BPD-002	D6-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C12	.004	600	6630	BPD-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	
C13	.015	600	7237719	BPD-015	DD16-153	CUB6S15	ED-015	GEM-6115	6TM-S15	
C14	.2	400	6614	P488N-22		CUB6P22		GEM-402	4TM-P2	
C15	100		6371	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C16	.003	1000	6563	P1088N-003	DD16-302	CUB10D3		GEM-1023	10TM-D3	
C17	.47	100	6692	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C18	.1	200	6690	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C19	.47	100	6692	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C20	.007	1600	6567	P1688N-007	DD16-702	CUB16D7		GEM-1627	MB-D7	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	250K	1/2-1/2	7268944				UE138IS	Tone
B	1Meg						Not Req	Volume, Tap ⓐ 300K
C	Switch						Not Req	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1.	1174	BTA-10K	
R4	68Ω		1111	BTS-68	
R5	330K		1229	BTS-330K	
R6	1Meg		1235	BTS-1Meg	
R7	100Ω			BTS-100	Note 1
R8	22K		1215	BTS-22K	
R9	15K	2	1277	BTB-15K	
R10	270Ω		1118	BTS-270	
R11	1Meg		1235	BTS-1Meg	
R12	1000Ω		1125	BTS-1000	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R13	2200Ω		1129	BTS-2200	
R14	1Meg		1235	BTS-1Meg	
R15	47K	1	1259	BTA-47K	
R16	68K		1221	BTS-68K	
R17	47K		1219	BTS-47K	
R18	3.3Meg		1241	BTS-3.3Meg	
R19	470K		1231	BTS-470K	
R20	360Ω 5%	1	7234563		
R21	1800Ω	3			Note 2
R22	15K	1	1253	BTA-15K	

Note 1. Not used in some versions.
Note 2. Manufacturer states to replace with 2700Ω, 2W & 5600Ω, 1W in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 2.33A	500VCT @ .070A			7269118			P-6495 ①		

① Use original channel mounting frame.

TRANSFORMER (INPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2			1220902						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	8700Ω CT	3-4Ω	7266997	Z1011 ①	A-2901 ①	A-3870 ①	22S56 ①	S-55X ①	① Use original channel mounting.

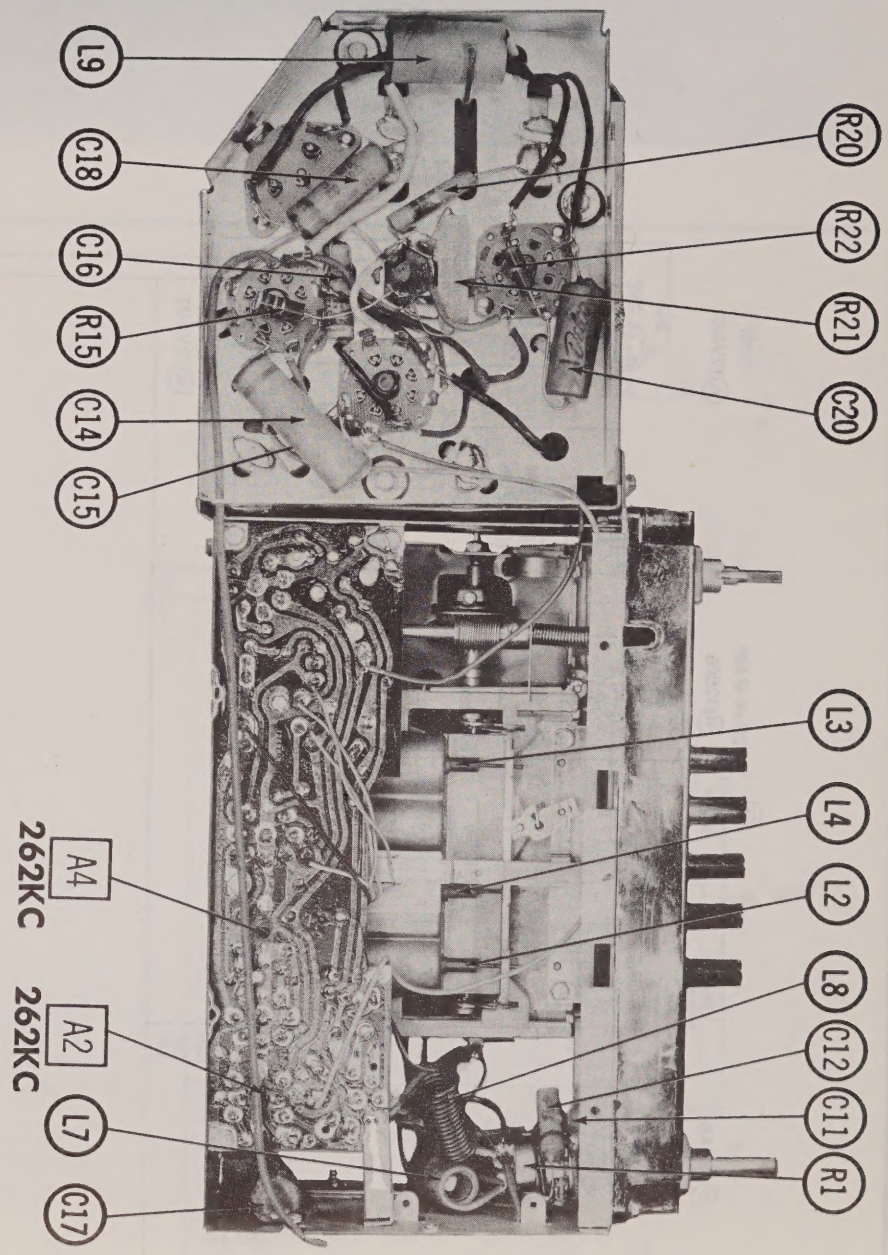
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	6"X9"	PM	3-4Ω	7269084	69A2	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coupling Coil	7255738	19-1005		4612	9 Microhenries
L2	Antenna Coil	1221050				
L3	RF Coil	1221050				
L4	Osc. Coil	1221051				
L5	Input IF	1220990	16-6756	BC-317	13-PH1	
L6	Output IF	1220992		BC-320	13-PH6	
L7	Fil. Choke	1217846				1.4 Microhenry
L8	Fil. Choke	1217846				1.4 Microhenry
L9	Vib. Hash Choke	1221077				42 Microhenries

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115v	8555	6330	G1602/G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	7 1/2A	455640		30307.5 (7AG 7 1/2A)		SFE 7 1/2A	

MISCELLANEOUS

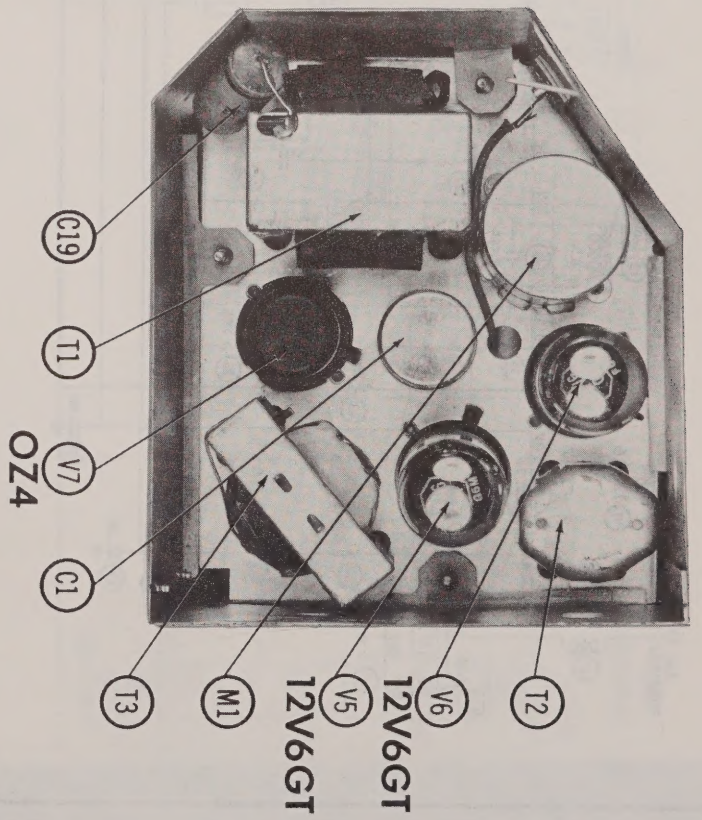
ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Light	456985	#1891
M4	Dial Light	456985	#1891
M5	Spark Plate	1221054	

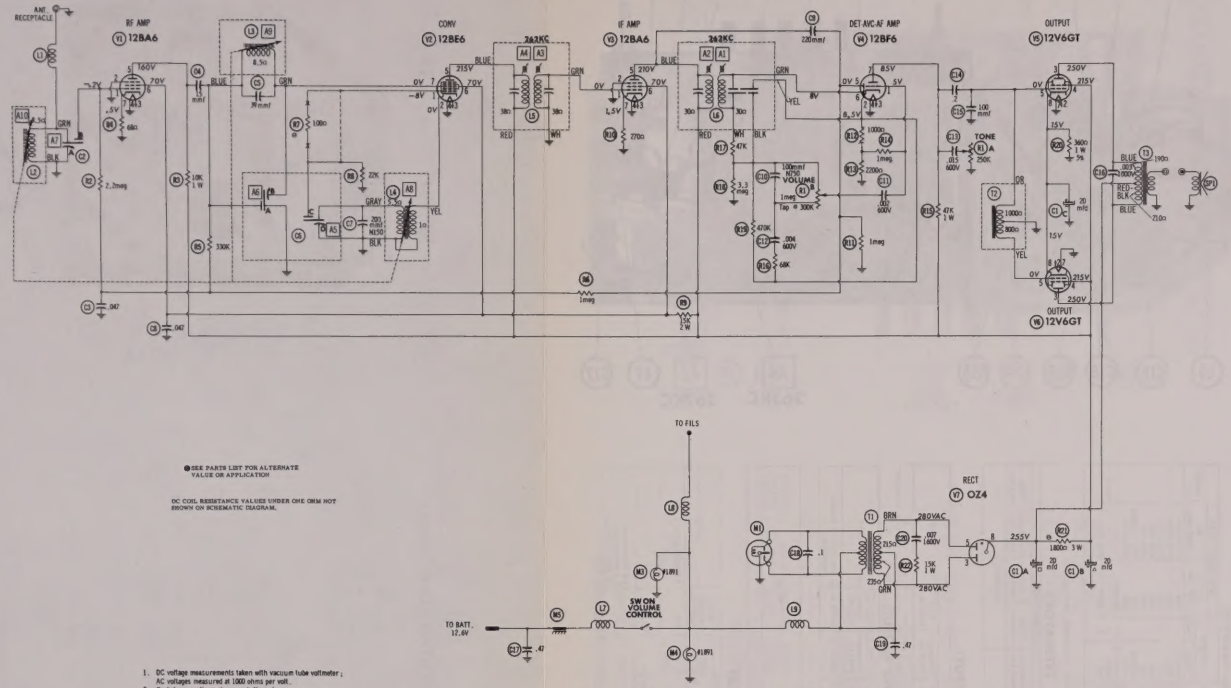
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Printed Panel	7268814-C	
Knob	1174606	Tuning, Manual
Knob	1175236	Tone
Knob	1175235	Dummy
Pushbuttons	1221055	Set of 5 (Includes front bearing Plate & Slides)
Dial	7268943	
Pointer Ass'y.	1221057	

TOP VIEW-OUTPUT CHASSIS





● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	4.2Meg	0Ω	1.1Ω	0Ω	↑12K	↑17K	68Ω		
V2	12BE6	22K	1Ω	1.1Ω	0Ω	↑1800Ω	↑17K	2.2Meg		
V3	12BA6	38Ω	0Ω	1.1Ω	0Ω	↑1800Ω	↑17K	270Ω		
V4	12BF6	1Meg	3200Ω	1.1Ω	0Ω	1Meg	350K	↑49K		
V5	12V6GT	NC	1.1Ω	↑190Ω	↑1800Ω	1000Ω	NC	0Ω	360Ω	
V6	12V6GT	TP	1.1Ω	↑210Ω	↑1800Ω	800Ω	TP	0Ω	360Ω	
V7	0Z4	0Ω	NC	235Ω	NC	215Ω	NC	TP	20KOhms	

↑ MEASURED FROM PIN 8 OF V7
NC NO CONNECTION
TP TIE POINT

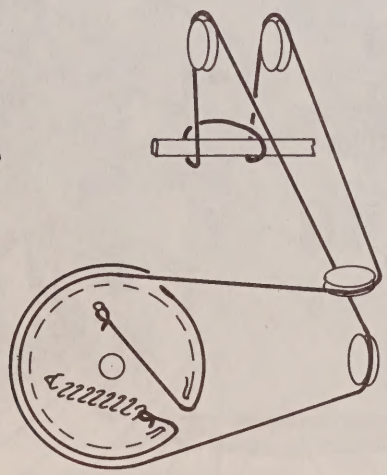
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

CRAFTSMEN
MODEL CT-4

CRAFTSMEN
MODEL CT-4

TRADE NAME	Craftsmen Model CT-4		
MANUFACTURER	Radio Craftsmen Inc., 4223 W. Jefferson Blvd., Los Angeles 16, Calif.		
TYPE SET	AC Operated FM-AM Tuner		
TUBES (Eight)	Types 6BQ7A FM RF Amp.-Mixer, 6U8 FM Osc.-AFC, 6BE6 AM Conv., 6BA6 1st. IF Amp., 6AU6 2nd. FM IF Amp.-AM Det.-AVC, 6AU6 3rd. FM IF Amp., 6AL5 Ratio Det., 6C4 AF Amp.		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.35 Amp. @ 117 Volts AC (33 Watts)
TUNING RANGE - BROADCAST	540KC-1650KC	FREQ. MOD.	88MC-108MC

TUNING GANG FULLY CLOSED

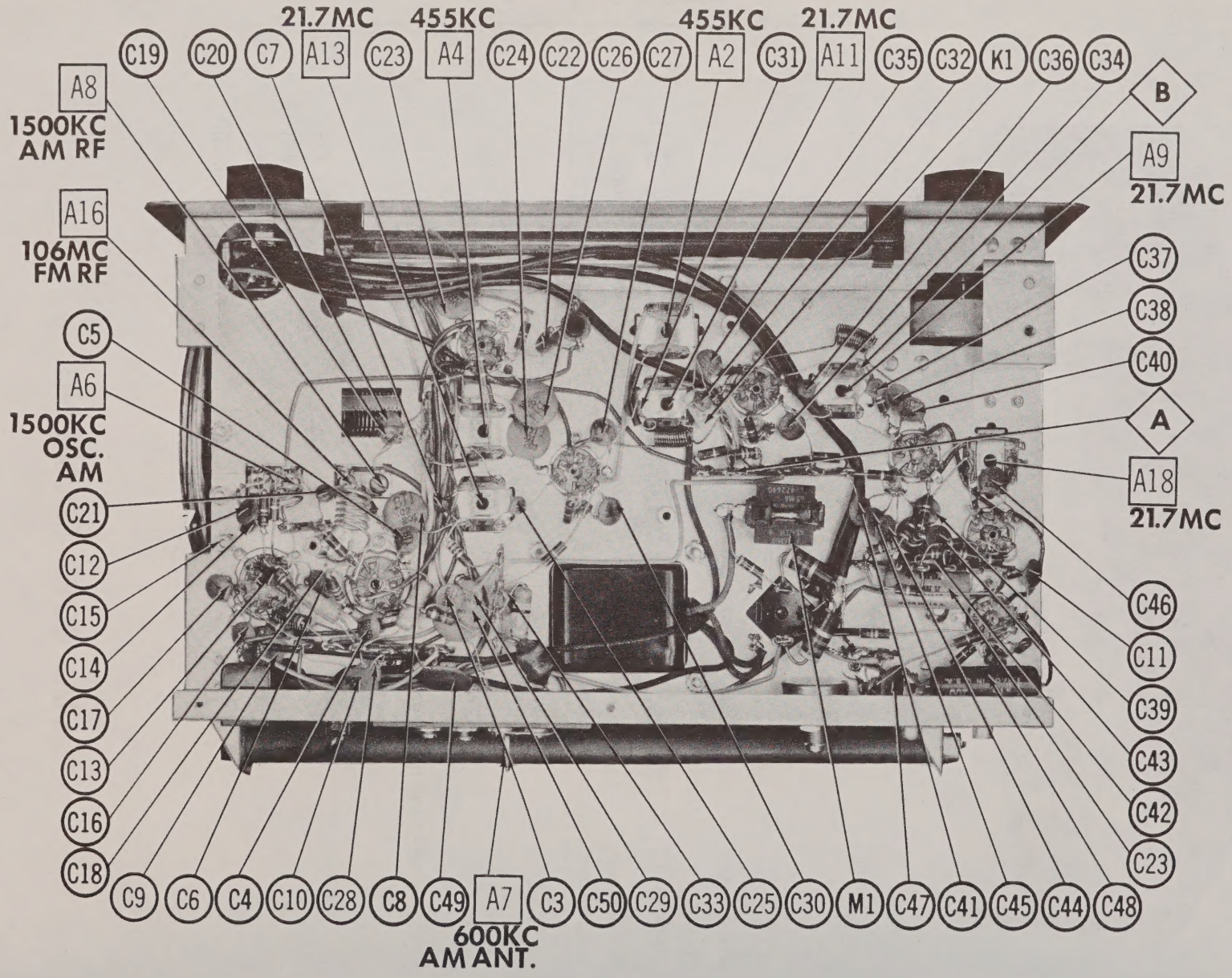


PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

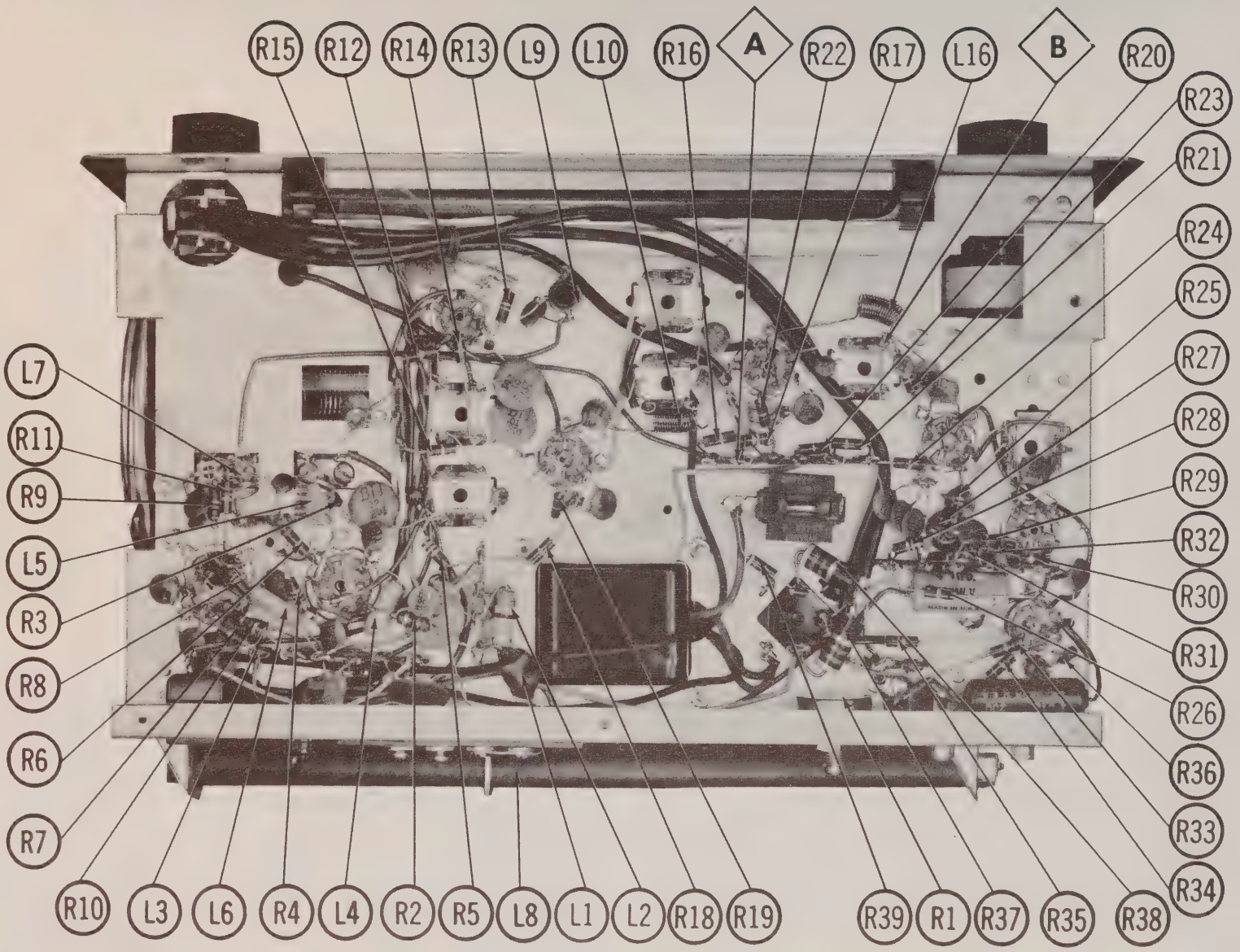
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



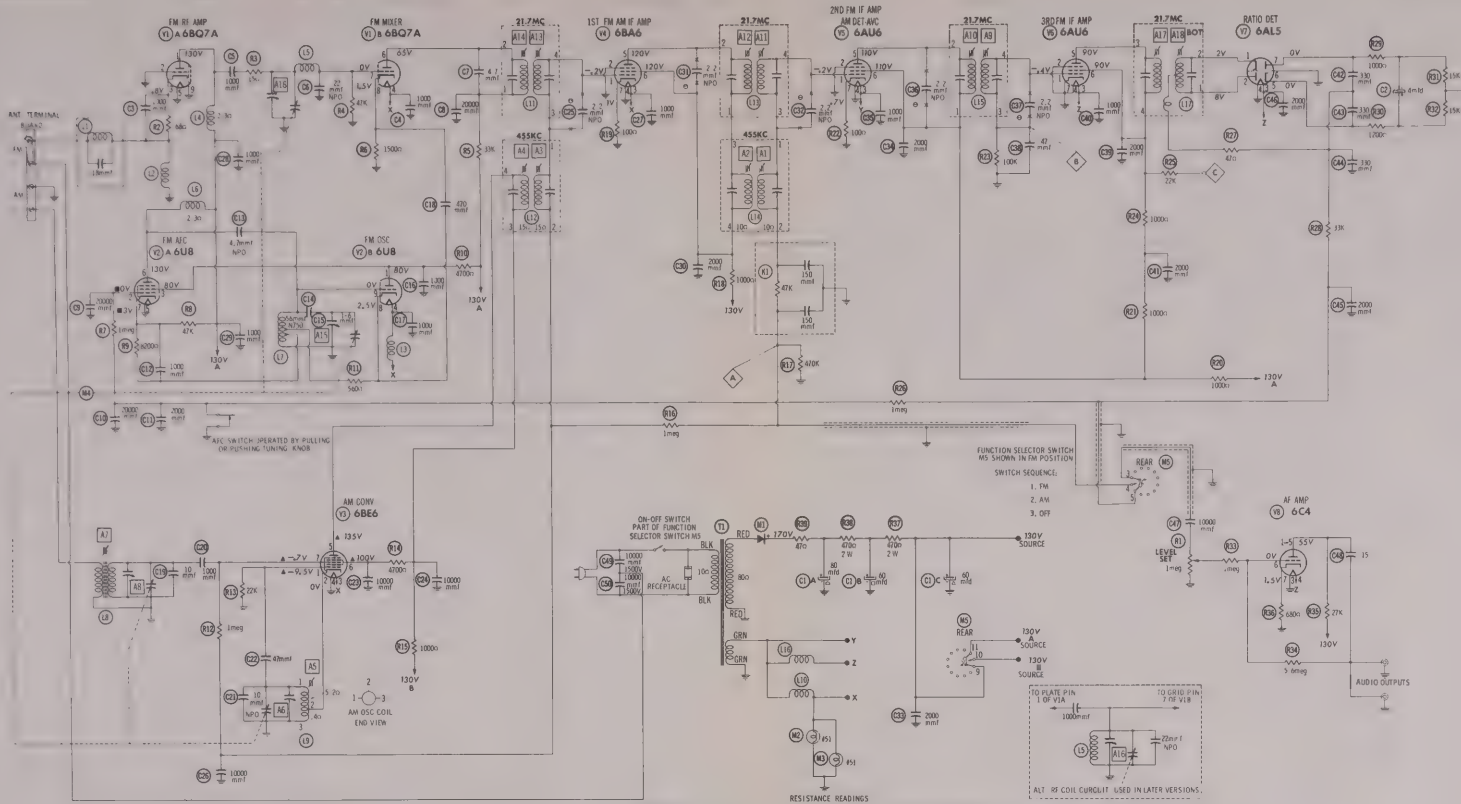
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

CRAFTSMEN
MODEL CT-4



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	↑985Ω	0Ω	68Ω	.1Ω	0Ω	↑34K	47K	1500Ω	0Ω
V2	6U8	↑5700Ω	■ INF 1Meg	↑5700Ω	.1Ω	0Ω	↑985Ω	820Ω	560Ω	0Ω
V3	6BE6	22K	4Ω	.1Ω	0Ω	▲↑2000Ω	▲↑67000Ω	2.4Meg		
V4	6BA6	1.4Meg	0Ω	.1Ω	0Ω	↑2000Ω	↑2000Ω	100Ω		
V5	6AU6	510K	0Ω	1Ω	0Ω	↑2000Ω	↑2000Ω	100Ω		
V6	6AU6	100K	0Ω	1Ω	0Ω	↑4000Ω	↑4000Ω	0Ω		
V7	6AL5	■ INF 1Meg	■ INF 1Meg	1Ω	0Ω	16K	0Ω	16K		
V8	6C4	↑28K	0Ω	0Ω	1Ω	↑28K	1.0Meg	680Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM OUTPUT OF M1
▲ MEASURED IN AM POSITION
■ MEASURED IN AFC POSITION

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

368-2

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
With gang fully closed set dial pointer to dial base line at left end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.01MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (unmod.)	AM	Point of non-interference	DC probe to point A. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2	220MMF	High side to AM Antenna terminal. Low side to chassis.	600KC	"	600KC	"	A5	"
3	"	"	1500KC	"	1500KC	"	A6	Adjust for maximum deflection. Repeat steps 2 & 3.
4	"	"	600KC	"	600KC	"	A7	Adjust for maximum deflection.
5	"	"	1500KC	"	1500KC	"	A8	Adjust for maximum deflection. Repeat steps 4 & 5.

FM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6	100MMF	High side to pin 7 (grid) of 6BQ7A (V1). Low side to chassis.	21.7MC (unmod.)	FM	Point of non-interference	DC probe to point B. Common to chassis.	A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7	270Ω Carbon Resistor	High side to FM Antenna terminal. Low side to chassis.	90MC (250KC Swp)	FM (AFC Off)	90MC	Vert Amplifier to point C. Low side to chassis.	L7	Compress or expand coil turns so that 90MC marker appears at peak of response curve similar to Fig. 1.
8	"	"	106MC	"	106MC	"	A15	Adjust so that 106MC marker appears at peak of response curve similar to Fig. 1. Repeat steps 7 & 8.
9	"	"	90MC	"	90MC	"	L5	Compress or expand coil turns for curve of maximum amplitude and symmetry similar to Fig. 1.
10	"	"	106MC	"	106MC	"	A16	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Repeat steps 9 & 10.
11	"	"	98MC	"	Tune to 98MC signal	Vert Amplifier to audio output jack.	A17, A18	Adjust A18 so that 98MC occurs at center of crossover lines similar to Fig. 2. Adjust A17 for maximum amplitude and straightness of crossover lines.

FIG. 1

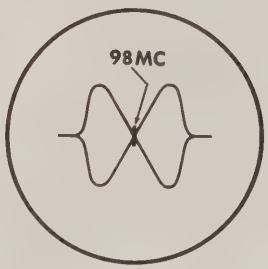


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier-FM Mixer	6BQ7A	
V2	FM Osc.-FM AFC	6U8	
V3	Am Converter	6BE6	
V4	1st. IF Amplifier	6BA6	
V5	2nd. FM IF Amplifier-AM Det.-AVC	6AU6	
V6	3rd. FM IF Amplifier	6AU6	
V7	Ratio Detector	6AL5	
V8	AF Amplifier	6C4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CRAFTSMEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▪80	150	CEX-12		XC0123	FP138	TMD-22	Q-005	R2429 *
B	■60	150				TCD-498	TD-80-150	MTD-302	
C	▲60	150							
C2	4	25		PRS150V4	BBR4-50	TC30	TD-4-25	MT-0504	TVA-1203

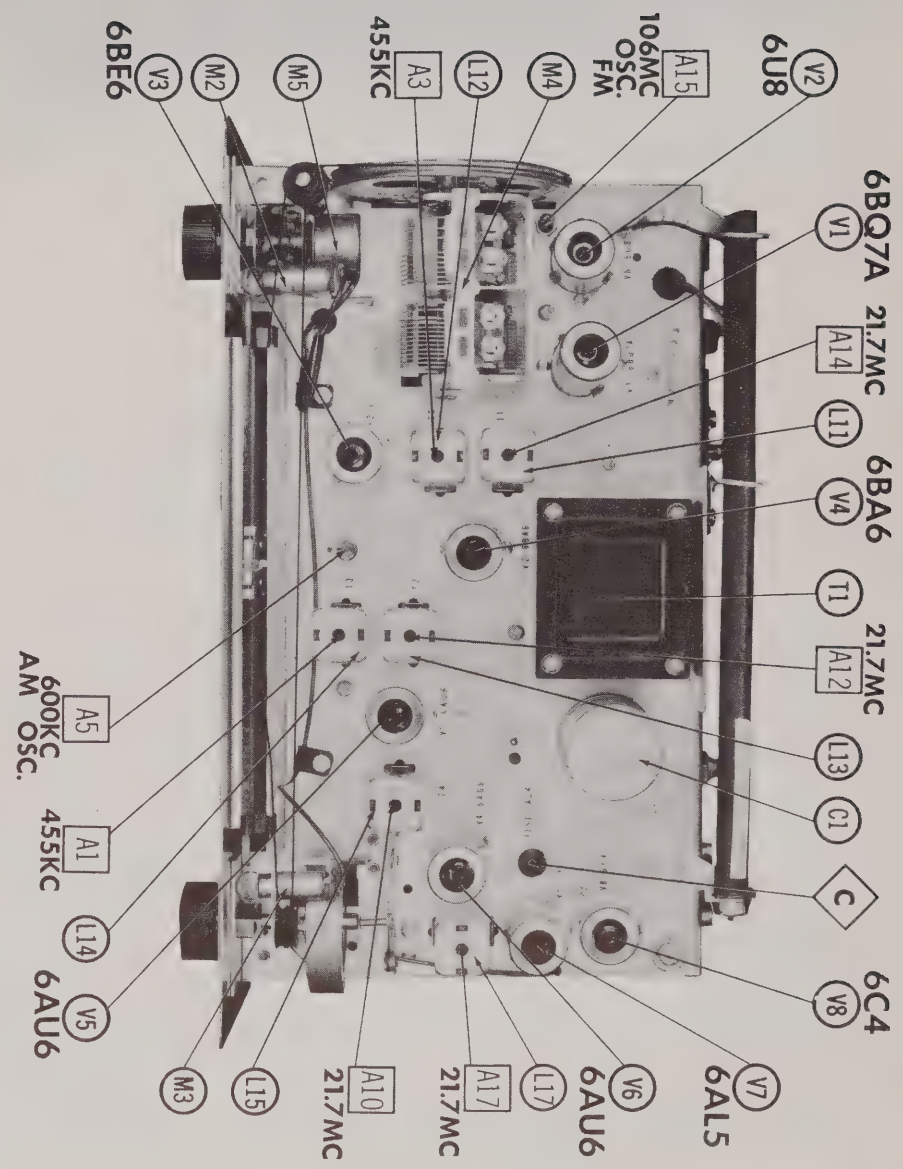
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CRAFTSMEN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C4	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C5	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C6	22			NP0-SI 22	TCZ-22	C10Q22C	TCO-22		5TCC-Q22	NP0
C7	4.7			NP0-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	
C8	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C9	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C10	20000			BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C11	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C12	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C13	4.7			NP0-SI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	NP0
C14	56			N750-SI 56	TCN-56	C10Q56U	TC7-56			N750
C15	1-6		CKX-1		829-6		532-B			
C16	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C17	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C18	470			BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C19	10			BPD-00001	DD-100	L10Q1	ED-10	UC-541	5GA-Q1	
C20	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C21	10			NP0-SI 10	TCZ-10	C10Q1C	TCO-10	ZT-541	5TCC-Q1	NP0
C22	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C23	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	2.2			NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	NP0 ①
C26	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C27	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C28	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C29	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C30	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C31	2.2			NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	NP0 ①
C32	2.2			NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	NP0 ①
C33	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C34	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C35	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C36	2.2			NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	NP0 ①
C37	2.2			NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	NP0 ①
C38	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C39	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C40	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C41	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C42	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C43	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C44	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C45	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C46	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C47	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C48	.15	200		P288N-15		CUB2P15		GEM-2015	2TM-P15	
C49	10000	1500		P1688N-01	DD16-103	CUB16S1		GEM-1611	MB-S1	
C50	10000	1500		P1688N-01	DD16-103	CUB16S1		GEM-1611	MB-S1	

① Not used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CRAFTSMEN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A B	1Meg Shaft	½	P-11	AB-69 AK-1	A47-1Meg-S FKS-1/4	Q11-137 RQ	SU-54 Not req.	Level Set

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CRAFTSMEN PART No.	IRC PART No.	
R2	68Ω			BTS-68	
R3	15Ω			BTS-15	
R4	47K			BTS-47K	
R5	33K			BTS-33K	
R6	1500Ω			BTS-1500	
R7	1Meg			BTS-1Meg	
R8	47K			BTS-47K	
R9	820Ω			BTS-820	
R10	4700Ω			BTS-4700	
R11	560Ω			BTS-560	
R12	1Meg			BTS-1Meg	
R13	22K			BTS-22K	
R14	4700Ω			BTS-4700	
R15	1000Ω			BTS-1000	
R16	1Meg			BTS-1Meg	
R17	470K			BTS-470K	
R18	1000Ω			BTS-1000	
R19	100Ω			BTS-100	
R20	1000Ω			BTS-1000	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CRAFTSMEN PART No.	IRC PART No.	
R21	1000Ω			BTS-1000	
R22	100Ω			BTS-100	
R23	100K			BTS-100K	
R24	1000Ω			BTS-1000	
R25	22K			BTS-22K	
R26	1Meg			BTS-1Meg	
R27	47Ω			BTS-47	
R28	33K			BTS-33K	
R29	1000Ω			BTS-1000	
R30	1200Ω			BTS-1200	
R31	15K			BTS-15K	
R32	15K			BTS-15K	
R33	1Meg			BTS-1Meg	
R34	5.6Meg			BTS-5.6Meg	
R35	27K			BTS-27K	
R36	680Ω			BTS-680	
R37	470Ω	2		BTB-470	
R38	470Ω	2		BTB-470	
R39	47Ω			BTS-47	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	CRAFTSMEN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.36	150VAC @.049A	6.3VAC @2.7A		T-29					

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		CRAFTSMEN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	IF Trap	T-40				3 Microhenries; Wound On 18 MMFCap
L2	RF Choke	53A043	19-1000	BC-561	4602	1 Microhenry; IRC Part #CLA
L3	Fil. Choke	53A051	19-1000	TV-189	4602	.75 Microhenry
L4	RF Choke	53A046				3.3Microhenries; IRC Part #CLA
L5	FM RF Coil	T-43				
L6	RF Choke	53A046				3.3 Microhenries; IRC Part #CLA
L7	FM Osc. Coil	T-44				
L8	Loop Stick	T-35				
L9	AM Osc. Coil	T-38				
L10	Fil. Choke	53A051	19-1000	TV-189	4602	.75 Microhenry
L11	1st FM IF	T-31				
L12	1st AM IF	T-33	16-6758	BC-352	12-C1	
L13	2nd FM IF	T-31				
L14	2nd AM IF	T-34	16-6758	BC-353	12-C2	
L15	3rd FM IF	T-31				
L16	Fil. Choke	53A051	19-1000	TV-189	4602	.75 Microhenry
L17	Ratio Det.	T-32				

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CRAFTSMEN PART No.	REPLACEMENT DATA	
K1	Det. RF Filter	150MMF, 150MMF, 47K	CCX-1	Aarovox Centralab Cornell Dubilier Erie Sprague	PA-98 PC-51 111TM2 1403-02 D-2

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	CRAFTSMEN PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	.049A	CR-11	1068	8RS065Q	8S75		

MISCELLANEOUS

ITEM No.	PART NAME	CRAFTSMEN PART No.	NOTES
M2	Dial Light		#51
M3	Dial Light		#51
M4	Tuning Cap.	CAX-6	4 Gang (AM Sections: Ant. 25-565MMF, Osc. 30-90MMF)
M5	Switch	SW-40	On-Off, Function (Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

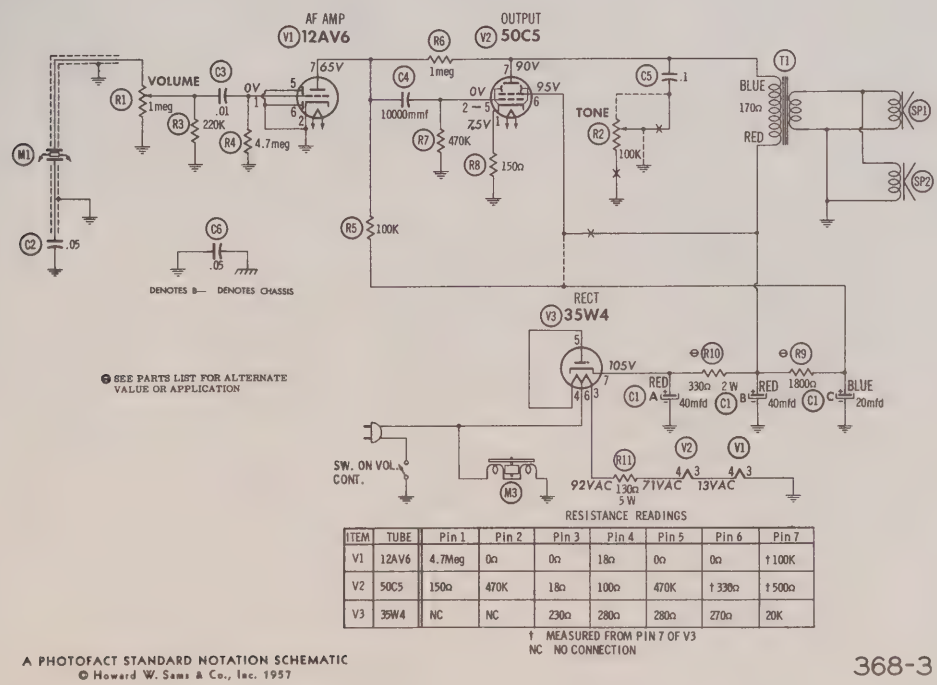
NAME	PART NO.	DESCRIPTION
Knob	N-12	Push-On Type
Knob	N-13	Set Screw Type
Dial Glass	IN-68	
Dial Pointer	82A009	

COLUMBIA RECORDS
MODEL 514

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

COLUMBIA RECORDS
MODEL 514

TRADE NAME	Columbia Records Model 514
MANUFACTURER	Columbia Records, 799 Seventh Ave., New York 19, N. Y.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Manual Record Player
TUBES (Three)	Types 12AV6 AF Amplifier, 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .3 Amp. @ 117 Volts AC (25 Watts without Motor)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AV6	4.7Meg	0Ω	0Ω	18Ω	0Ω	0Ω	†100K
V2	50C5	150Ω	470K	18Ω	100Ω	470K	†330Ω	†500Ω
V3	35W4	NC	NC	230Ω	280Ω	280Ω	270Ω	20K

† MEASURED FROM PIN 7 OF V3
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

368-3

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AV6	
V2	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Columbia Records PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	11A712	PRS150V4040	BBRT44215	TCT3116	TDLT-4	FMT-315	TVA-3448
B	40	150		20					
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Columbia Records PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200		BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C3	.01	400		BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C4	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C5	.1	200		P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C6	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Columbia Records PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	9A540	AB-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			AK-4	KSS-3	Not req.	Not req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	100K	½	9A541	AB-41	A47-100K-S	Q11-128	U41	Tone
B	Shaft			AK-4	KSS-3	Not req.	Not req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Columbia Records PART No.	IRC PART No.	
R3	220K			BTS-220K	
R4	4.7Meg			BTS-4.7Meg	
R5	100K			BTS-100K	
R6	1Meg			BTS-1Meg	
R7	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Columbia Records PART No.	IRC PART No.	
R8	150Ω			BTS-150	Note 1.
R9	1800Ω			BTS-1800	
R10	330Ω	2		BTB-330	
R11	130Ω	5			

Note 1. 2200Ω used in some versions.

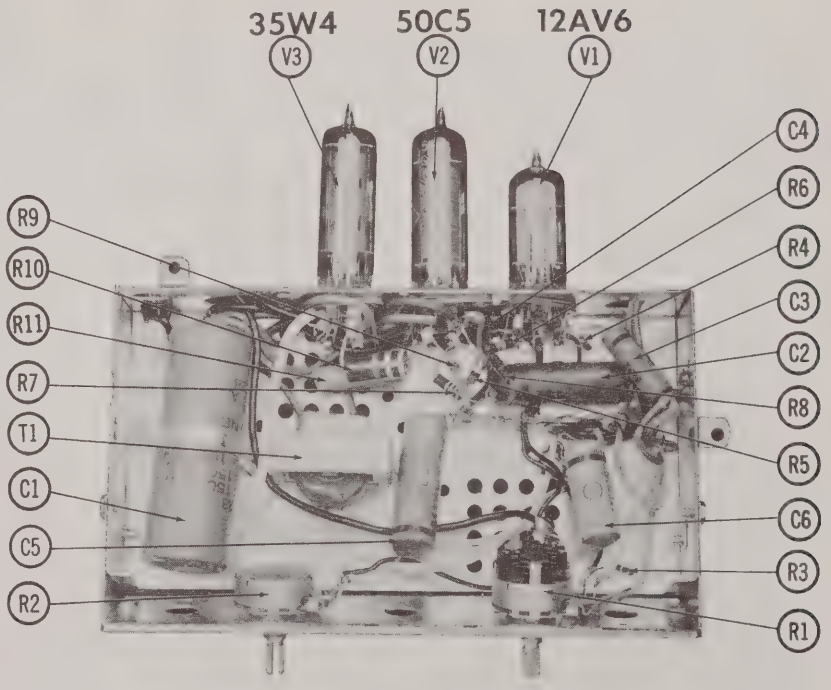
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	1.72Ω	3A213	Z1001 ①②			24S48		① Tape center tap on primary winding. ② Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Columbia Records PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	1A102 ①	4A07 ①	① Connect in parallel & phase
SP2	4"	PM	3-4Ω	1A102 ①	4A07 ①	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Columbia Records PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	T0-222	420-TS	N8-1 and N8-3	56	PT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Columbia Records PART No.	JENSEN PART No.	WALCO PART No.	
M2		† CR-55 or † CR-55LP or ♦ CR-55D ♦ CR-55LPD	† W-64S † W-64MGS	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Columbia Records PART No.	NOTES
M3	Phono Motor	6A306	4 Speed
	Knob	8A447	ON-OFF-Volume, White
	Cabinet	17A930	Green
	Cabinet	17A931	Ginger & Tan

DEJUR MODELS
TK-820, TMB-820

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DEJUR MODELS
TK-820, TMB-820

GENERAL INFORMATION

The DeJur Dual Professional Tape Recorder Models TK-820 and TMB820 use standard 1/4" magnetic tape and dual track recording. Two sets of erase and record-playback heads are provided thus eliminating the necessity of stopping and reversing the tape reels at the end of each track. Control is by pushbuttons which includes a momentary hold button for temporarily stopping recording or playback. Complete facilities for all types of inputs and outputs are provided as well as remote controls. Reversing time at 7 1/2 i.p.s. is 4 seconds and at 3 3/4 i.p.s. is 1 second.

Using both tracks of the tape the recording time is approximately as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 hour	1/2 hour
7" (1200 ft.)	2 hours	1 hour

These units are designed to operate on 60 cycle 115 volts AC supply only. Before connecting to a line supply be absolutely certain it agrees with the above specifications.

Supplied By:

DeJur Amsco Corporation
Northern Blvd. at 45th. St.
Long Island City 1, New York

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

Copyright 1957 • All Rights Reserved

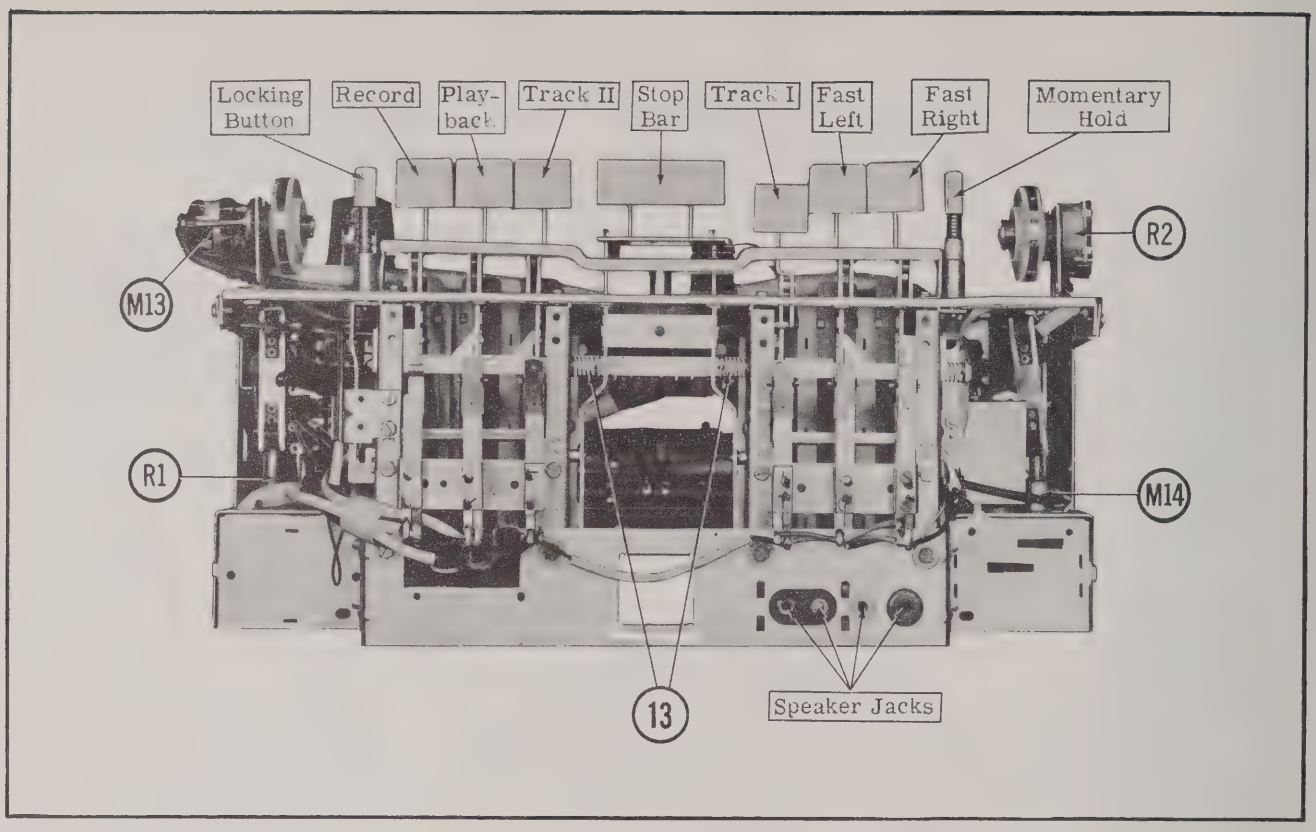


Figure 1

SPECIFICATIONS

Reel Capacity:

Up to 7" maximum.

Speed:

3 3/4 i.p.s. and 7 1/2 i.p.s.

Fast Rewind Time:

3 3/4 i.p.s. — 2 3/4 minutes.
7 1/2 i.p.s. — 80 seconds.

Speakers:

Five

Oscillator Frequency:

45 KC

Tube Complement:

EF804, ECC81, EL42, EM71, EL84.

Inputs:

Tuner; Radio-Phono-TV, Microphone plus remote control (2 high, 1 low impedance).

Outputs:

Built in speakers, phone-speaker, power amplifier.

Frequency Response:

3 3/4 i.p.s. — 50 cps to 10,000 cps ± 2 db
7 1/2 i.p.s. — 40 cps to 16,000 cps ± 2 db

Signal To Noise Ratio:

-55 db

WOW And Flutter:

3 3/4 i.p.s. — Less than 0.2 %
7 1/2 i.p.s. — Less than 0.1 %

Push-Button Controls:

All functions are controlled by relays actuated by push-buttons for easy operation.

Automatic Stop:

The recorder can be stopped automatically at the end of a reel of tape by the use of metal foil leaders.

OPERATING INSTRUCTIONS

Preparation For Operation:

1. Remove the AC power cord, microphone, empty reel and reel of tape from the storage compartment.

2. Depress the stop bar. This releases all buttons except the track buttons. Depress the Track I button.

3. Set speed control switch to the extreme right

or left position, 7 1/2 i.p.s. or 3 3/4 i.p.s. respectively.

4. Plug the AC line cord into the receptacle in the back of the recorder and into a convenient power supply being certain that outlet supply is 110 volts AC.

Speed Change Knob:

The speed change knob is an electrical slide switch and must be kept at the end of its slide/either right — 7 1/2 i.p.s., or left — 3 3/4 i.p.s. to insure proper electrical contact.

Threading The Tape:

1. Place empty reel on right hand spindle with reel slots engaged on protrusions on reel pan.

2. Place full reel of tape on left hand spindle with glossy side of tape out. Unwind about 14" of tape from reel.

3. Insert section of free tape into tape slot.

4. Insert end of tape into slot in empty reel. Turn reel by hand 2 or 3 turns to secure tape.

To Record From Microphone:

1. Insert microphone cable plug into jack marked "Microphone" on back of recorder.

2. Turn "Input Selector Switch" to "Micro".

3. Turn on-off-loudness control clockwise until click is heard and allow about 30 seconds for unit to warm up. Light under tape counter dial will glow when set is turned on.

4. Press Track I button. (Feeds from left to right).

5. Depress "Locking" button, and while holding lock button down, depress "Recording" button.

6. While holding down "Locking" button, set correct recording level by adjusting loudness control until "Magic Eye" just closes on the loudest notes.

7. To start recording release "Locking" button.

NOTE: The tone control does not function during recording.

To Record From Radio-TV-Phonograph:

1. Insert the phonograph pickup plug into the "Radio-TV-Phono" input jack.

2. Set selector switch to "Radio".

3. Proceed as described under "To Record From Microphone".

NOTE: On phonographs having a standard pin plug a telephone type plug adapter will be required.

4. For Radio or TV recording, connect patch cord to the voice coil of the radio or TV speaker by means of the alligator clips. Plug into Radio-TV-Phono input jacks.

5. Set selector switch to "Radio".

6. Proceed as described under "To Record From Microphone".

7. Remove patch cord when recording is completed.

To Use Second Track:

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

1. Depress Stop Bar.

2. Depress Track II Button

3. Proceed as described under "To Record From Microphone".

NOTE: Track II may be used without stopping the motor by merely depressing the Track II button while the unit is operating. The unit takes about 4 seconds to reverse at 7.5 i.p.s. and one second at 3 3/4 i.p.s.

To Play Recordings:

1. Turn on unit with "Loudness" control knob. Depress Stop Bar.

3. Set the Speed Control Switch to the speed at which the recording was made.

2. Place tape on left hand reel as described under "Threading The Tape".

4. Depress Track I button.

5. Depress Play button.

6. Adjust Tone and Loudness controls to desired listening level.

High Speed Forward Or Reverse:

When it is desirable to play a certain portion of the tape it is not necessary to rewind or play the entire tape. By depressing the "Forward" or "Reverse" button the tape will advance (or reverse) at a rapid speed.

Several minutes of normal recording can be skipped in a few seconds by this procedure.

Tape Timer:

The tape timer provides complete selectivity and immediate location of any part of the recorded tape. By setting the tape indicator to zero when beginning each reel, the numerals on the indicator will act as a ready reference to any desired portion of the recorded tape. Permanent records may be kept on the tape box allowing pin-point selection of any recording.

To Edit And Splice Tape:

NOTE: Recordings to be edited should be limited to one track because it is impossible to edit one track without affecting the other track.

1. The tape may be edited by cutting out unwanted portions or by joining selections in another sequence. Announcements may be inserted between

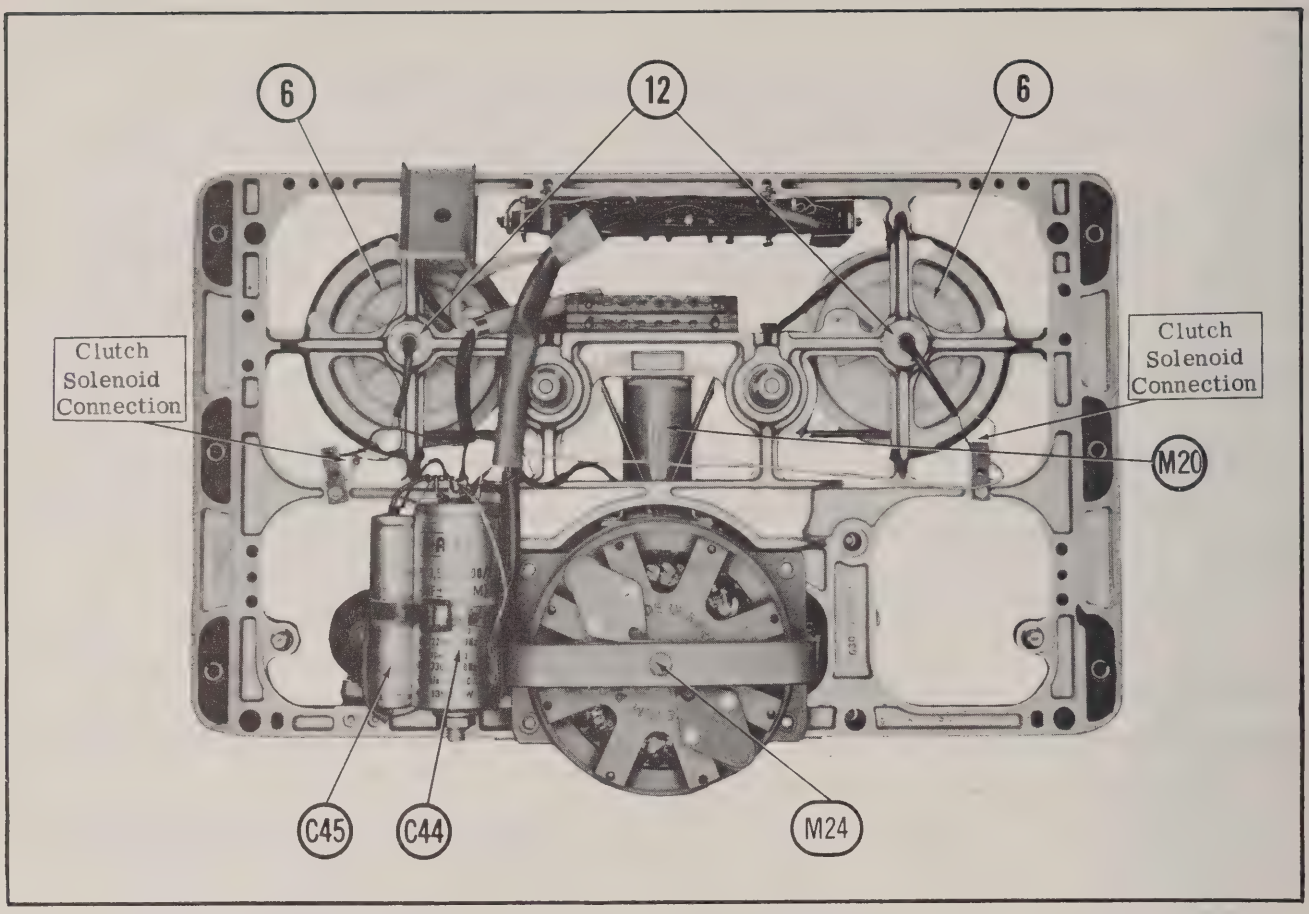


Figure 2

selections, etc. Unused sections of tape may be spliced together for re-use.

2. Best results are obtained by cutting the tape at a slight diagonal. Join ends together with splicing tape on the glossy side, and cutting off any excessive width.

Erasing Recorded Material:

The erase head operates automatically when the "Record" button is depressed erasing any previous recording while a new recording is being made. To erase material without making a new recording depress the "Record" button and turn the loudness control to the minimum position. To erase the second track depress the Track II button and proceed as above.

Motor Drive Circuit Operation:

The motor is an inside-out HYSTERESIS SYNCHRONOUS motor, exceptionally heavy to insure constancy of speed. Reversal is obtained by PHASE SHIFT. The motor contains two pairs of contact blades (G1 and G2) both being closed when the motor is stopped.

With Track I depressed, all other buttons up, switch off, 7 1/2 i.p.s. speed, the motor circuit is as follows:

1. Contact M21-2 closed on 165 V. line.

2. Contact M15-5 closed for clockwise rotation.

3. Contacts M19-1 and M19-2, closed.

4. Contact bridge 2B-1B, 2C-1C, 8I-7I, 8K-7K closed on motor relay circuit.

5. Governor contacts G1 and G2 closed.

6. Contact M19-3 open.

When the unit is turned on motor relay M-19 energizes through bridge contacts, closes contact M19-3, and opens contacts M19-1 and M19-2. This stops motor and releases pressure solenoid.

NOTE: Depressing any of the other buttons breaks bridge contact string (4 above) but motor relay remains energized due to contact M19-3 being closed. For this reason buttons must be pressed all the way down to close shorting contacts 4A-3A, 4C-3C, 5H-4H, or 5J-4J. These contacts temporarily short the power to the motor relay opening contact M19-3, and closing contacts M19-1 and M19-2, allowing motor to start.

Recording Button Depressed:

7 1/2 i.p.s.

1. Contacts G1 and UIII closed.

2. Relay M21 energizes shifting contact M21-2 to 260 VAC supply to motor.

3. Just below normal speed centrifugal switch G1 opens, de-energizes relay M21, changes contact

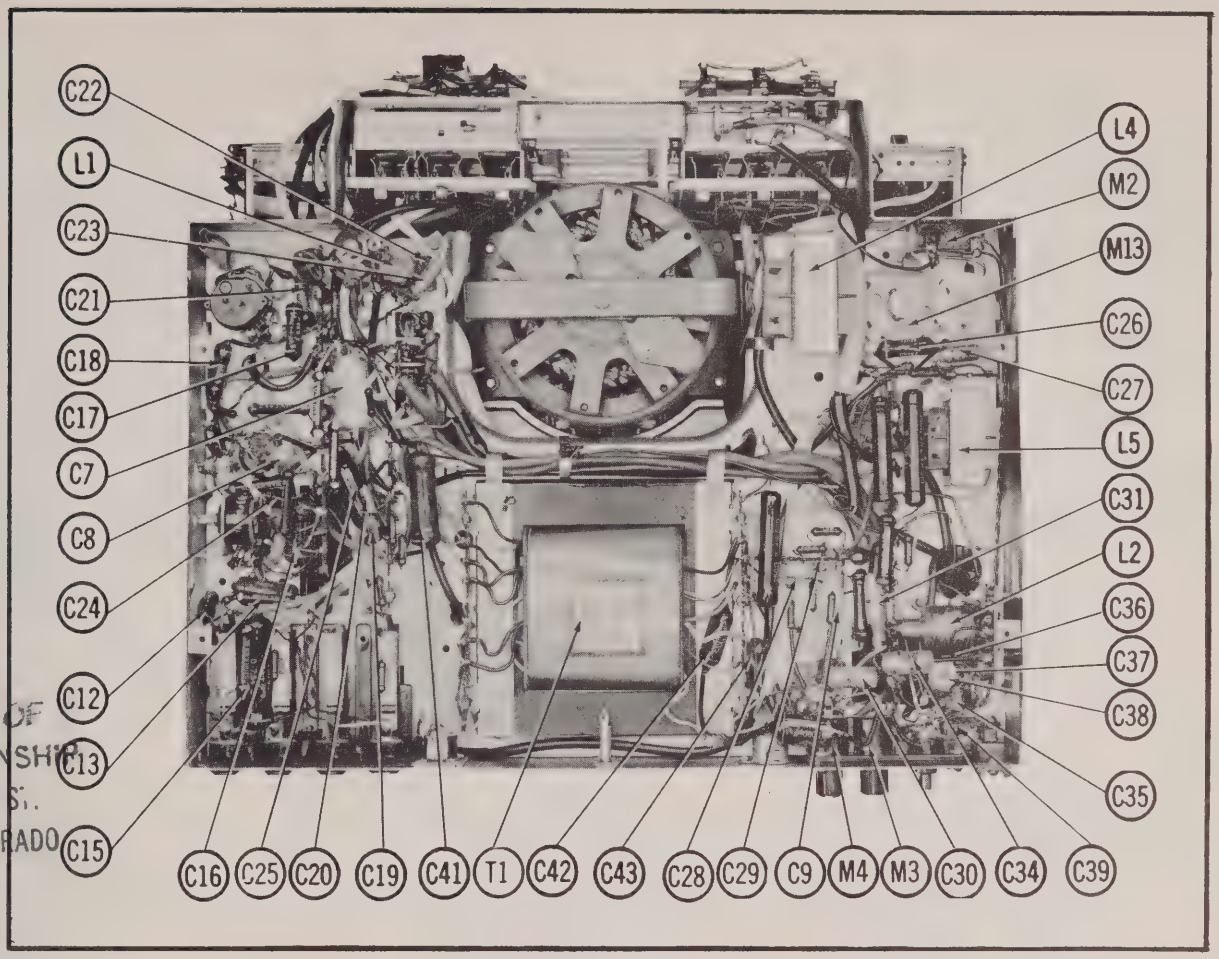


Figure 4

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

M21-2 from 260 VAC to 165 VAC supply.

3 3/4 i.p.s.

Relay M21 does not operate at 3 3/4 i.p.s. setting due to contact U3 being open. Motor starts on 165 VAC.

Changing From Track I to Track II Without Stopping Motor:

With Track I depressed head relay M17 is not energized. When Track II is depressed relay (M17) operates switch (M15) as follows:

1. M15-5 changes motor return circuit shifting phase of motor; motor reverses.

2. M15-1 changes power supply from left clutch to right clutch.

3. M15-2, M15-3 and M15-4 change the corresponding ERASE, and RECORD-PLAYBACK heads.

4. Contacts 1F-2F are closed temporarily when Track II button is completely depressed. This energizes changeover assisting relay M22, closing contact M16-1 and opening contact M16-2. This opens motor circuit. (Shown in heavy lines on schematic).

5. When motor stops centrifugal switch closes closing contact G1. This energizes relay M21 which changes contact M21-2 from 165 VAC to 260 VAC motor supply, and closes contact M21-1. Relay M22 falls out closing contact M16-2 completing motor circuit.

6. Motor comes up to speed and shifts to 165 VAC supply as described earlier.

NOTE: To override any previously set operation it is necessary to push the button completely to the bottom.

The unit may be temporarily stopped by depressing the momentary "Stop" button (black top). When this button is released the unit immediately restarts. For permanent stops depress the "Stop Bar".

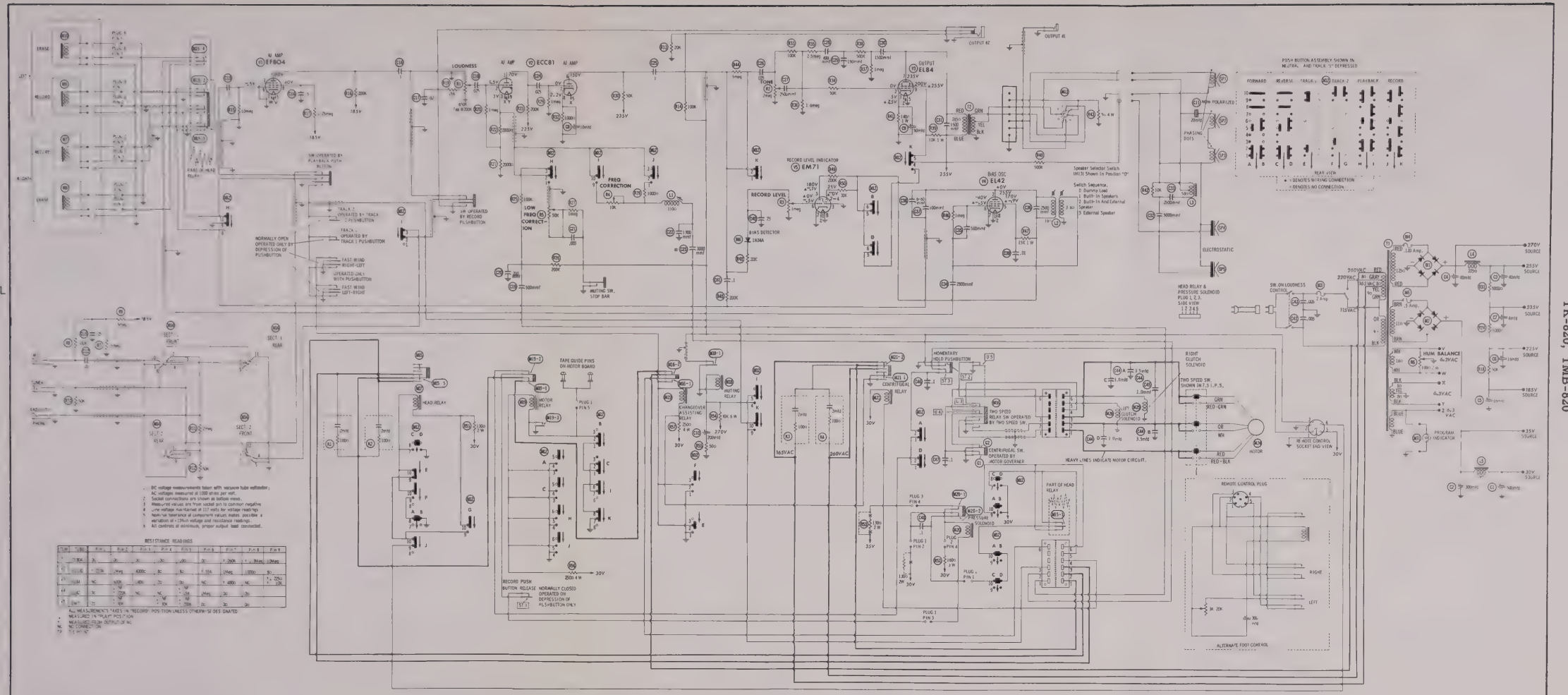
Fast Forward Or Fast Rewind:

When the "Fast Forward" or "Fast Rewind" button is pressed, current through the pressure solenoid (M20) is interrupted by contacts 2A-1A or 1D-2D respectively. In "Fast Forward" the right clutch magnet is energized through contacts 9A-9B while in "Fast Rewind" the left clutch magnet is energized through contacts 7C-7D. When the clutch magnet is energized a practically solid coupling exists between the upper and lower halves of the clutch assembly. Relay M19 is de-energized by contacts 3A-4A or 3C-4C respectively and completes the motor circuit.

ADJUSTMENTS

Disassembly Instructions:

1. Remove the two control knobs, the speed change knob and four round brass screws from the cover plate. Remove cover plate.



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1200 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Normal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1 EF804	2K	2K	2K	2K	0Ω	0Ω	1.2KΩ	1.1MEG	1.2MEG
V2 ECC81	1.25K	2MEG	4000Ω	0Ω	0Ω	1.55K	1MEG	1000Ω	0Ω
V3 EL84	NC	500Ω	400Ω	2Ω	2Ω	NC	1.480Ω	NC	1.225Ω to 10K
V4 EL42	2K	120K	NC	NC	1.5K	2MEG	2Ω	2Ω	
V5 EM71	2Ω	1.5K			1.5K		2Ω	2Ω	

ALL MEASUREMENTS TAKEN IN "RECORD" POSITION UNLESS OTHERWISE DESIGNATED
* MEASURED IN "PLAY" POSITION
MEASURED FROM OUTPUT OF M1
NC = NO CONNECTION
Ω = 1 OHM

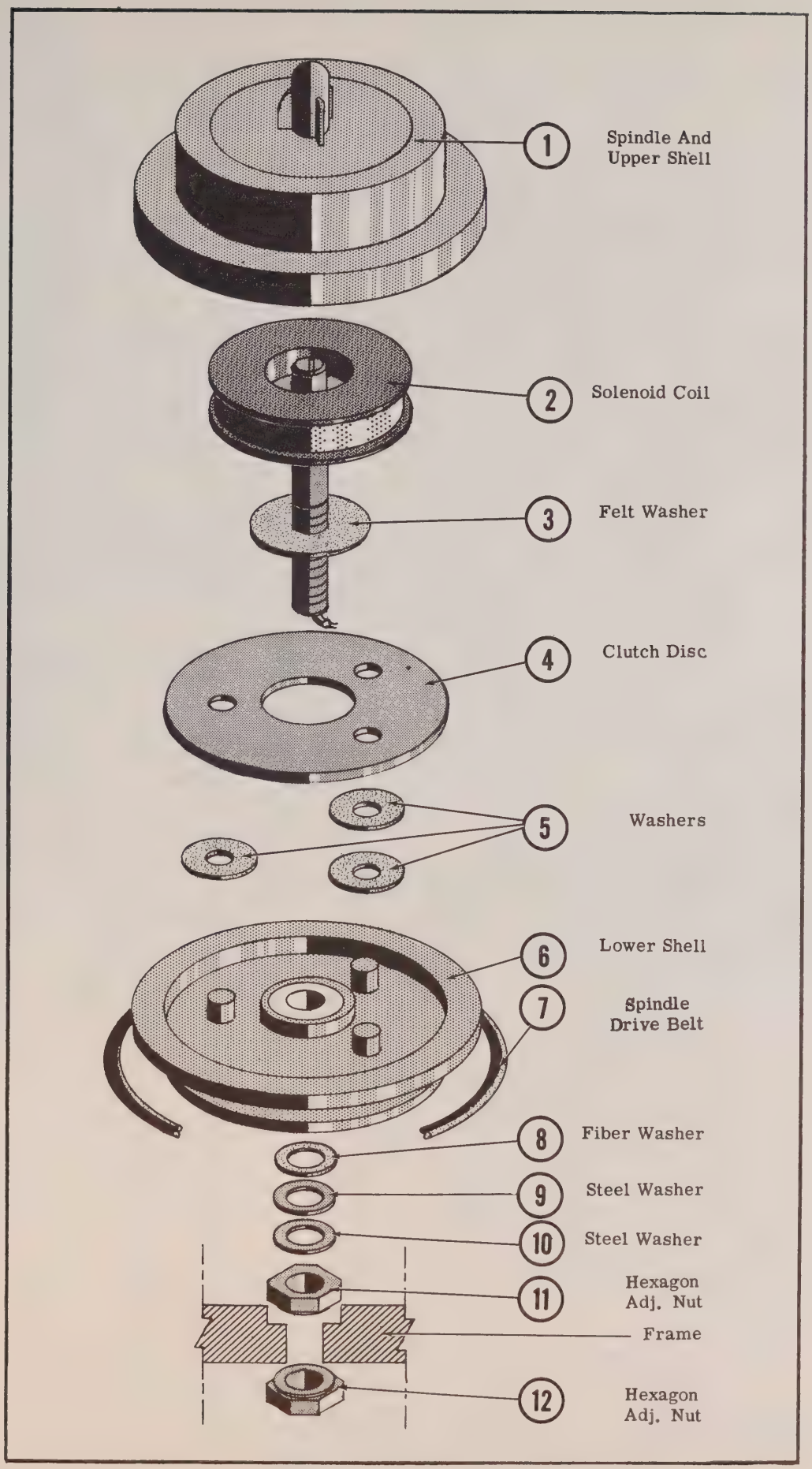

1
Spindle And
Upper Shell
2
Solenoid Coil
3
Felt Washer
4
Clutch Disc
5
Washers
6
Lower Shell
7
Spindle
Drive Belt
8
Fiber Washer
9
Steel Washer
10
Steel Washer
11
Hexagon
Adj. Nut
Frame
12
Hexagon
Adj. Nut

Figure 3

2. Unscrew six small nuts holding chassis to the cabinet.

3. Carefully lift the chassis partially out of the cabinet being careful not to damage fuses on the back of the chassis or contacts on the front of the chassis.

4. Unplug speaker leads and remove chassis completely from cabinet.

NOTE: Do not lift chassis by clutch assemblies as serious damage to the clutches will result.

Separation Of The Tape Transport Mechanism And The Amplifier:

1. Unplug three 5 prong plugs leading to the head mounting plate, the 12 prong plug on top of the transformer, and the two prong plug from the program indicator.

2. Unscrew 14 screws along the rim of the top frame.

3. Carefully lift off the top frame being careful not to damage the push button switches.

NOTE: The external cage of the motor rotates — Be absolutely certain that it is well clear of any obstructions before switching on.

Clutch Replacements:

1. Unsolder the two leads to the clutch solenoid and remove the upper clutch spindle (1).

2. Insert a screw driver into the slot in the solenoid and unscrew the bottom locking nut (12).

3. Lift out the clutch assembly.

4. Install the new assembly in the order shown in Figure 3, starting with piece 11. The axial play of piece (6) should not exceed 1/64th inch.

5. Tighten the bottom lock nut (12) lightly.

6. Place two gauge washers between the clutch solenoid and the upper clutch shell. Rotate the shell and check the clearance between the felt insert on the upper shell and the top surface of the drive pulley. The upper shell should be just clear of the drive pulley. If so, remove one gauge washer and again check the clearance. The upper shell should just touch the drive pulley causing a smooth friction. Proper spacing can be obtained by turning the solenoid clockwise to decrease the space between the shells and counterclockwise to increase the spacing.

7. Make sure both clutch shells are level with each other.

8. Remove both gauge washers and tighten the lock-nut (12).

9. Install upper clutch shell (1) and replace shell holding bracket. Resolder the solenoid leads.

10. Thread a tape and check the unit for correct mechanical operation of the tape transport mechanism.

Record-Playback Head Adjustment:

The position of the Record-Playback and erase heads is very critical. The adjustment should be made using a tape on which a 6000 c.p.s. note has been recorded on a standard machine. The adjustment is accomplished by altering setting of the three screws mounting the Record-Playback head sockets to the chassis. Use a VTVM connected into the high impedance output. Adjust for maximum output. The heads are then adjusted to bring the gap of the heads in close contact with the coating of the tape.

Adjust the top edge of the LEFT Record-Playback head about 1/64th inch above the top edge of the tape with the tape running. Adjust the bottom edge of the RIGHT Record-Playback head below the bottom edge of the tape. The edge of the pole pieces of the erase heads should line up exactly with the corresponding edge of the tape.

The tape should run between the tape guide posts in an absolutely straight line. This is very important, and correct adjustment of the tape guide posts is therefore critical.

Pressure Solenoid, Pressure Roller, And Pressure Slider:

The pressure roller and slider transport the tape over the head assemblies at an even speed and is operated by the pressure solenoid. The pressure roller should exert pressure against the tape equivalent to about one pound pull on the tape.

To adjust loosen the lock-nut on the back of the solenoid and rotate the core until the desired pressure exists. Tighten lock-nut. A screw-driver slot is provided for turning the core.

Hum Control Adjustment:

The hum level is adjusted by R6 to a minimum on each "Playback" channel. The level should not exceed 1/100th of a 1000 c.p.s. recording made at full modulation level on both tracks and at both speeds on "Playback" at the maximum setting of the loudness control. This corresponds to a hum level of minus 50 db. R6 is finally adjusted to a compromise setting that does not exceed this level at either speed on either track.

Adjustment For Slow Take-Up Reel:

Make adjustment for proper setting of the two shells as outlined under "Clutch Replacement".

Bias Adjustment:

Bias current to each recording head is approximately 1 ma. when recording. To check insert a 100 ohm 1/2 W carbon resistor in series with the head to chassis return lead. The voltage drop across the resistor should be 100 mv 10%. Adjust C38 to obtain correct bias.

High frequency current to erase head is approximately 50 ma when recording. Place a 10 ohm 1/2 watt in series with the head to chassis return lead. The voltage drop across the resistor should be 500 mv. The core of the oscillator coil (L-2) is adjusted to obtain this reading.

NOTE: If the erase head current is adjusted the recording bias current will require readjustment.

Frequency Response And Equalization:

1. To check frequency response, feed a signal of 775 mv (0 db) at 1000 c.p.s. into FM TUNER input (on all TMB-820 models and those TK-820 units bearing serial numbers higher than 630 x 20000. Use RADIO input for all TK-820 units having serial numbers below 630 x 20000), and adjust recording level control.

2. Reduce signal 20 db and record frequencies of 50, 300, 1000, 4000, 8000, and 14000 c.p.s. at tape speed of 7 1/2 i.p.s.

3. Connect a VTVM to the "Power Amplifier Output Jack" and play the recording back. Observe the output level which should be within 2.5 db using 1000 c.p.s. as reference level.

4. Adjust post emphasis controls, R-4 for frequencies above 2000 c.p.s. and R-5 for frequencies below 500 c.p.s., to bring response into the proper range. Repeat the test on opposite track.

5. Repeat the procedure at tape speed of 3 3/4 i.p.s. using frequencies of 60, 300, 1000, 4000 and 9000 c.p.s. On "Playback" the output level should be within 3.5 db using 1000 c.p.s. as reference level.

Adjustment Of The Resonance Coil:

1. Connect an audio oscillator set at 13000 c.p.s. to the grid of the first stage of the ECC81 (pin 2). Connect a VTVM to the "Output II" socket.

2. Start the unit on 7 1/2 i.p.s. and adjust the core of the resonance coil until maximum deflection is obtained.

3. Reduce audio frequency to 8000 c.p.s. and set speed to 3 3/4 i.p.s. Note the reading on the VTVM.

4. Sweep the signal frequency slightly above and below 8 KC. This should show a peak on the VTVM at 8 KC. If this is not the case repeat the entire procedure using a frequency just above or below 13000 c.p.s.

WOW And Flutter:

1. Using a WOW meter, the reading should not exceed 0.1% at 7 1/2 i.p.s. tape speed and 0.2% at 3 3/4 i.p.s. tape speed.

2. Alternately, a 5000 c.p.s. signal may be recorded and played back at both speeds. No change in pitch should be audible.

TROUBLES

Push Buttons Fail To Lock Into Position:

1. Lock bar spring (13) loose or broken not engaging locking bar when button is depressed.

Fails To Erase:

1. Erase heads (M8 or M10) defective. Replace heads.

2. Bias oscillator tube (V4) defective. Replace tube.

3. Head Relay (M17) not operating switch (M15) properly. Adjust or replace.

4. Head Relay (M17) defective. Replace relay.

5. Switch contacts (M15-3 or M15-4) not making contact. Clean and adjust contacts.

Speed Variation Or "WOW":

1. Check pressure roller (14) pressure against capstan (15). See "Pressure Solenoid, Pressure Roller, and Pressure Slider" adjustment.

No Fast Forward Or Reverse:

1. Clutch solenoid defective. Replace solenoid. See "Clutch Replacement".

2. Head relay switch contact (M15-1) not making contact. Clean contacts.

3. Motor drive belts (16) broken or slipping. Replace belts.

4. Spindle drive belts (7) broken on slipping. Replace belts.

5. Head relay (M17) defective. Replace relay.

No Drive On Record Or Playback:

See steps 3, 4 and 5 above.

Tape Fails To Wind On Take-Up Reel During Record Or Playback:

1. Defective clutch. See "Clutch Replacement" for adjustment.

2. Motor drive belt (16) or spindle drive belt (7) slipping or broken. Replace belt.

Fails To Record:

1. Record heads (M7 or M9) defective. Replace head.

NOTE: Heads are furnished in matched sets only. When replacing one always replace both.

2. Head relay (M17) defective. Replace relay.

3. Head relay switch contact (M15-2) not making contact. Clean and adjust contact.

4. Head not properly aligned with tape. See "Record-Playback Head Adjustment".

CLEANING

The record heads, capstan and pressure roller are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. Use a soft cloth and alcohol to clean the pressure roller, capstan and head surfaces.

LUBRICATION

Occassionally clean out foreign matter from the working surfaces and oil with a small drop of oil being careful not to get oil on the electrical contacts or wiring.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp.	EF804	
V2	AF Amp.	ECC81	
V3	Audio Output	EL84	
V4	Bias Osc.	EL42	
V5	Record Level Indicator	EM71	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DeJur PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	500	30			BR5005	TC2505		MTH2525 & MTH2525	HLV-550
C2	300	30		PRS150V300	BR2505	TC50025 & TC39	TD-300-150	MTH2525	TVA-1425
C3	40	350		PRS350V40	BR4035	TC78	TD-40-350	FM-4540	TVA-1611
C4	40	350		PRS350V40	BR4035	TC78	TD-40-350	FM-4540	TVA-1611
C5	16	350		PRS350V16	BR1635	TC64	TD-16-350	FM-3516	TVA-1607
C6	16	350		PRS350V16	BR1635	TC64	TD-16-350	FM-3516	TVA-1607
C7	4	350		PRS350V4	BR435	TC60	TD-4-450	FM-4504	TVA-1601
C8	10	12		XPP12V10	BBR10-25	TC22	ML10-15	MMT-0210	TE-1128
C9	50	12		SRE12V50	BBR50-25	TC29	TD-50-25	FM-0250	TVA-1206
C10	200	70		PRS150V200	BR20015	TCD2174	TDLD-15	S-110	TVA-1423
C11	20	100	Note 1		BR4015 & † BR4015	TC48 † TC48		MT-1540 † MT-1540	R2379 *

Note 1. Non-Polarized Unit * Non Catalog Item † Connect negative leads together.

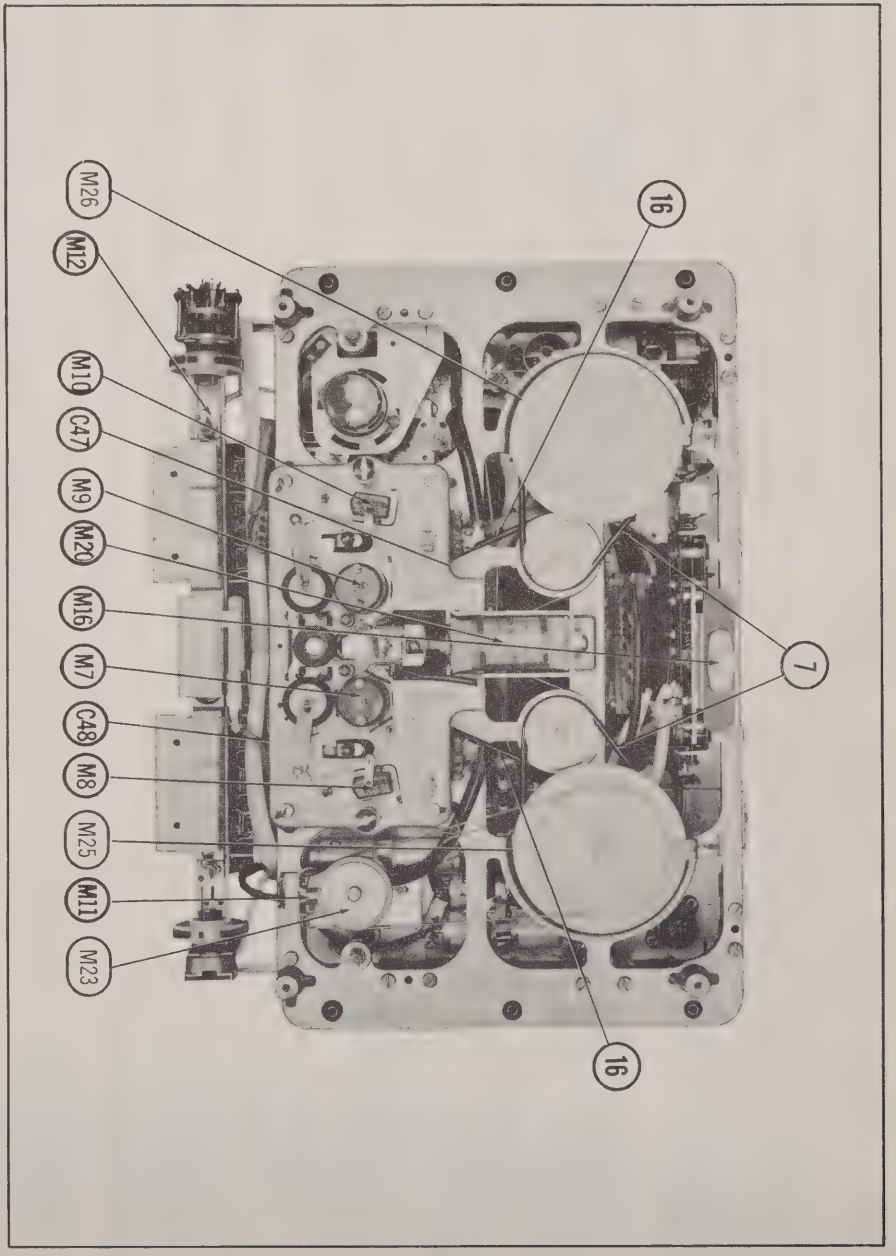
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DeJur PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C12	.01	250		BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C13	.1	250		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C14	.5	250		P488N-5	DF-503	CUB4P5		GEM-405	4TM-P5	
C15	.25	250		P488N-25		CUB4P25		GEM-4025	4TM-P25	
C16	.1	250		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C17	.02	250		BPD-02	DD-203	CUB4S2	ED-02	GEM-412	4TM-S2	
C18	.025	250							4TM-S25	
C19	200			BPD-0002	DD-201	LT6T2	GP-200	UC-532	5GA-T2	
C20	500			BPD-0005	DD-501	LT6T5	GP-500	UC-535	5GA-T5	
C21	.005	250		BPD-005	DD-502	CUB4D5	GP-5000	GEM-425	4TM-D5	
C22	1300					L10D13			5GA-D13	
C23	3000				DD-302	LT6D3	GP-3000	UC-523	5GA-D3	Note 1
C24	.025	500							6TM-S25	
C25	.1	500		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C26	.025	250							4TM-S25	
C27	2500			BPD-0025	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C28	400			BPD-0004	D6-401	LT6T4			5GA-T4	
C29	150			BPD-00015	D6-151	LT6T15	GP-150	UC-5315	5GA-T15	
C30	1500			BPD-0015	DD-152	LT6D15	GP-1500	UC-5215	5GA-D15	
C31	1500			BPD-0015	DD-152	LT6D15	GP-1500	UC-5215	5GA-D15	
C32	5000			BPD-005	DD-502	BYA10D5	GP-5000	UC-525	5GA-D5	
C33	2500			BPD-0025	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C34	2500			BPD-0025	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C35	500			BPD-0005	DD-501	LT6T5	GP-500	UC-535	5GA-T5	
C36	2500			BPD-0025	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C37	100			BPD-0001	DD-101	LT6T1	GP-100	UC-531	5GA-T1	
C38	6-60									
C39	.01	500		BPD-01	DD-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C40	125	125		P288N-25		CUB2P25		GEM-2025	2TM-P25	
C41	.1	500		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C42	.005	500		BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C43	.005	500		BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C44A	3.5	500								
B	3.5	500								
C	1.0	500								
D	1.0	500								
C45	1.0	500								
C46	.1	250		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C47	.1	250		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C48	.1	250		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

Note 1. Some versions may use a 2500 in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DeJur PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	650K	1/2						Tap@ 200K (Loudness)
B	Switch							
R2	2Meg	1/2						Tone
R3	1Meg	1/2						Recording Level Indicator
R4	10K	1/2						Frequency Correction (Post Emphasis)
R5	50K	1/2						Low Frequency Correction
R6	100Ω	2W						Hum Level Wirewound

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DeJur PART No.	IRC PART No.	
R7	5Meg			BTS-5Meg	
R8	500K			BTS-500K	
R9	3Meg			BTS-3Meg	
R10	50K			BTS-50K	
R11	2Meg			BTS-2Meg	
R12	50K			BTS-50K	
R13	20K			BTS-20K	
R14	100K			BTS-100K	
R15	10Meg			BTS-10Meg	
R16	200K			BTS-200K	
R17	1.25Meg			BTS-1.25Meg	
R18	50K			BTS-50K	
R19	15K			BTS-15K	
R20	1Meg			BTS-1Meg	
R21	2000Ω			BTS-2000	
R22	2000Ω			BTS-2000	
R23	200K			BTS-200K	
R24	5000Ω			BTS-5000	
R25	100K			BTS-100K	
R26	200K			BTS-200K	
R27	1Meg			BTS-1Meg	
R28	1000Ω			BTS-1000	
R29	1Meg			BTS-1Meg	
R30	50K			BTS-50K	
R31	5000Ω			BTS-5000	
R32	1000Ω			BTS-1000	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DeJur PART No.	IRC PART No.	
R33	100K			BTS-100K	
R34	50K			BTS-50K	
R35	2.5Meg			BTS-2.5Meg	
R36	1.6Meg			BTS-1.6Meg	
R37	1Meg			BTS-1Meg	
R38	500K			BTS-500K	
R39	10K	1		BTA-10K	
R40	500K			BTS-500K	
R41	140Ω	1		BTA-140	
R42	10K			BTS-10K	
R43	5Ω	4		PW4-5	
R44	5Meg			BTS-5Meg	
R45	200K			BTS-200K	
R46	1Meg			BTS-1Meg	
R47	15K	1		BTA-15K	
R48	20K			BTS-20K	
R49	200K			BTS-200K	
R50	30K			BTS-30K	
R51	130Ω	2		BTB-130	
R52	160Ω 5%	3			
R53	130Ω	2		BTB-130	
R54	30K	6			
R55	50Ω			BTS-50	
R56	250Ω	4		PW4-250	
R57	250Ω	4		PW4-250	

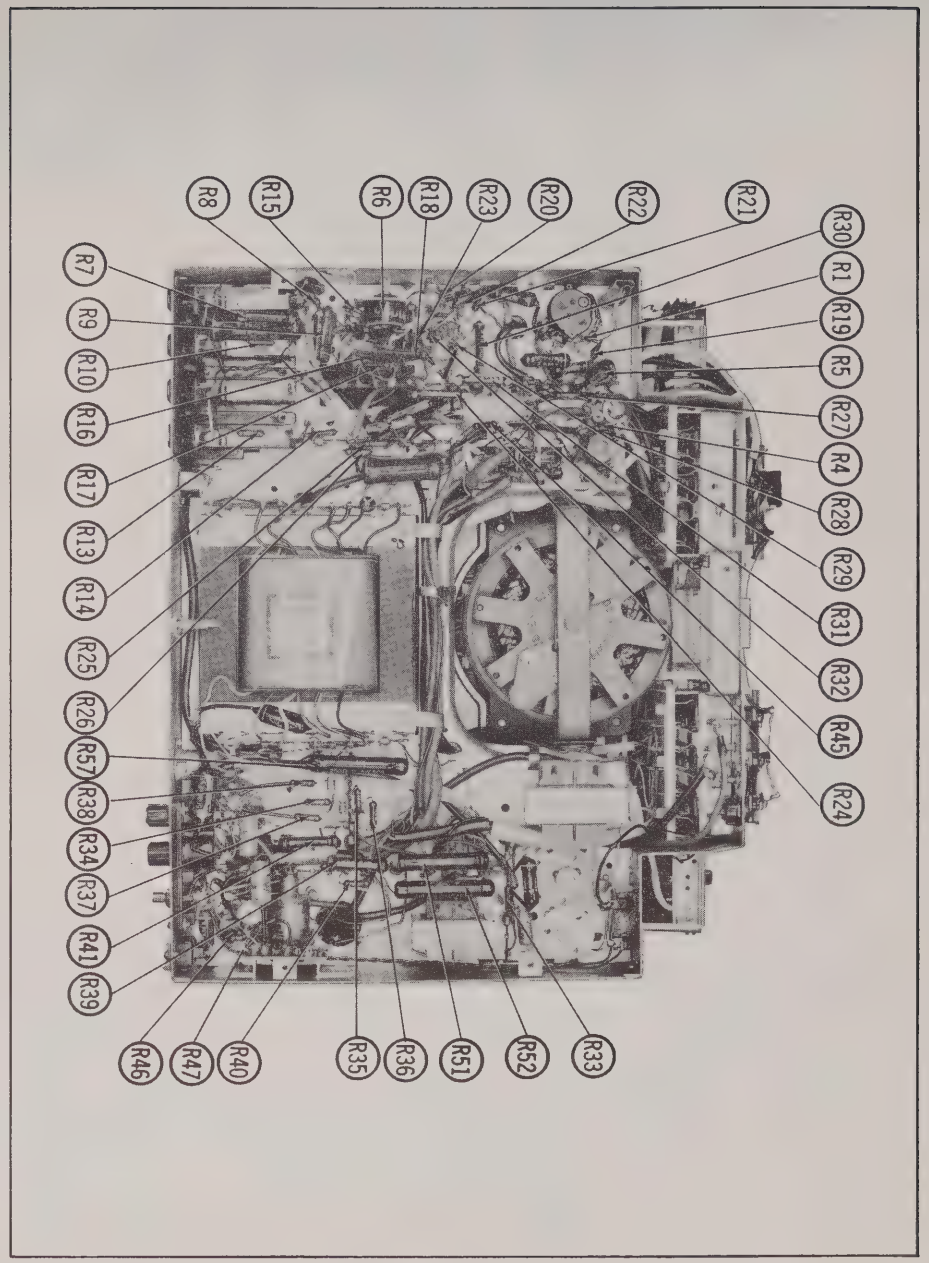
TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	DeJur PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	265VAC Taps@ 235V, 180V & 117V@ .96A(7½ L.P.S.) 1.06A(3 3/4 L.P.S.)	230V @ .068A	23V @ .2A	6V @ .2A SEC. 4 6.3VCT @ .3A SEC. 5 6.3V @ 1.3A	BV9008-501					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DeJur PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω	6-8Ω Tap@ 3-4Ω	BV 9060/500	Z1109 ①			22S58 ②		① Tape 16Ω tap on Secondary ② Tape center tap on Primary

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DeJur PART No.	NOTES
L1	Resonance Coil	BV1824	
L2	Bias Osc.	BV1815	
L3	Crossover Choke	BV1769	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DeJur PART No.	QUAM PART No.	
SP1	5"X7"	PM	3-4Ω	19/4/100-0. 95		① Electrostatic Type
SP2	3½"	PM	3-4Ω	16/3/70B	3AlR	
SP3	3½"	PM	3-4Ω	16/3/70B	3AlR	
SP4			①			
SP5			①			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	DeJur PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L4	. 068A	225Ω	9 Hy.	BV48/46	C5012				
L5	. 200A	9Ω	. 34 Hy.	BV38. 4/23					

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		DeJur PART No.	SYLVANIA PART No.	
M6		E05212	1N34A	Bias Detector (Pigtail)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DeJur PART No.	REPLACEMENT DATA
K1		2.0 MFD 100Ω Resistor		
K2		2.0 MFD 100Ω Resistor		
K3		2.0 MFD 100Ω Resistor		
K4		2.0 MFD 100Ω Resistor		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DeJur PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3		2A 250V						
M4		. 120A 250V S/B						
M5		. 5A 250V S/B						

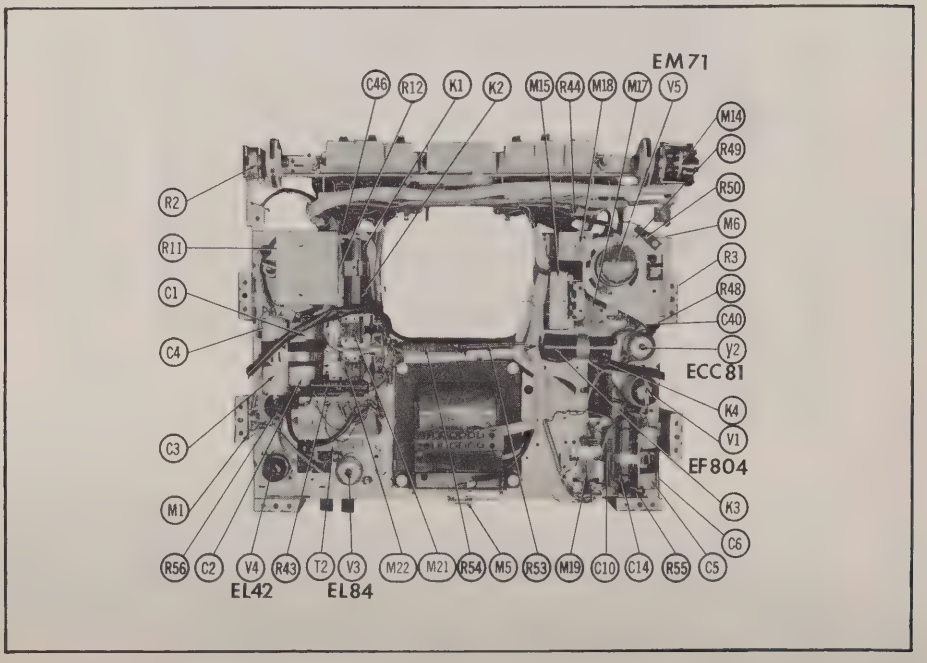
PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DeJur PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	. 068A	B250C110		60-9150 ②			① Drill hole for stud mtg.
M2	. 200A	B25C450K	1016 ①	B1B ①	B26E ①	3048 ①	② 2 Required

MISCELLANEOUS

ITEM No.	PART NAME	DeJur PART No.	NOTES
M7	Record Head	BV1379	Right
M8	Erase Head	BV1380	Right
M9	Record Head	BV1379	Left
M10	Erase Head	BV1380	Left
M11	Pilot Lamp		Program Indicator
M12	Switch		Pushbutton Assy.
M13	Switch		Speaker, Rotary Type
M14	Switch		Input Selector, 2 Gang, Rotary Wafer Type
M15	Switch		Head Relay
M16	Switch		Speed Changeover
M17	Relay	BV008	Head Relay
M18	Relay	BV013	Muting
M19	Relay	BV004	Motor
M20	Solenoid	BV001	Tape Pressure
M21	Relay	BV012	Centrifugal
M22	Relay	BV004	Speed Changeover Assisting
M23	Clock		Program Indicator
M24	Motor	5KL4. 80FQ2	
M25	Clutch	BV002	Magnetic, Right
M26	Clutch	BV002	Magnetic, Left



DUMONT CHASSIS RA380, RA381

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

DUMONT CHASSIS
RA380, RA381

TRADE NAME	Dumont Models Bedford, Belmore, Berkely, Brewster, Bryon (Ch. RA-380, RA-381)
MANUFACTURER	Allen B. Dumont Laboratories, Inc., 257 Sixteenth Ave., Paterson, N.J.
TYPE SET	Television Receiver
TUBES	Seventeen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 165 Watts, 1.4 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 6
Disassembly Instructions 1
Horizontal Sweep Circuit Adjustments 16
Parts List and Descriptions 12, 13, 14
Photographs
- Cabinet-Rear View 16
- Capacitor & Alignment Identification 4, 9
- Chassis-Top View 7
- RF Tuner 11, 15

Photographs (Con't)
- Resistor & Inductor Identification 5, 8

Resistance Measurements 10
Servicing in the Field 1
Schematic (Alternate Tuner) 11
Schematic (TV) 2
Tube Failure Check Chart 3
Tube Placement Chart (Bottom View) 10
Tube Placement Chart (Top View) 3

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type control knobs from the front and 3 from the side.

2. Remove 4 metal screws and the rear cover.

3. Remove the on-off-volume and brightness control by depressing 2 spring clips.

4. Remove 2 speaker leads, the yoke plug, picture tube socket, grounding strap and HV lead.

5. Remove 5 metal screws holding the tuner assembly to the cabinet.

6. Remove 4 chassis bolts.

7. Remove the chassis.

8. Remove 2 speaker nuts and the speaker.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DUMONT CHASSIS
RA380, RA381

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of the VHF oscillator it is necessary to remove the chassis from the cabinet. (See disassembly instructions.)

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 metal screws holding the metal trim at the top. Tilt safety glass out at the top and remove.

SPECIAL ADJUSTMENTS

A. Focus

Adjust the ion trap for the best focus consistent with maximum brightness.

B. Width

The width may be varied by means of a metallic sleeve located between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronize horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

FUSES

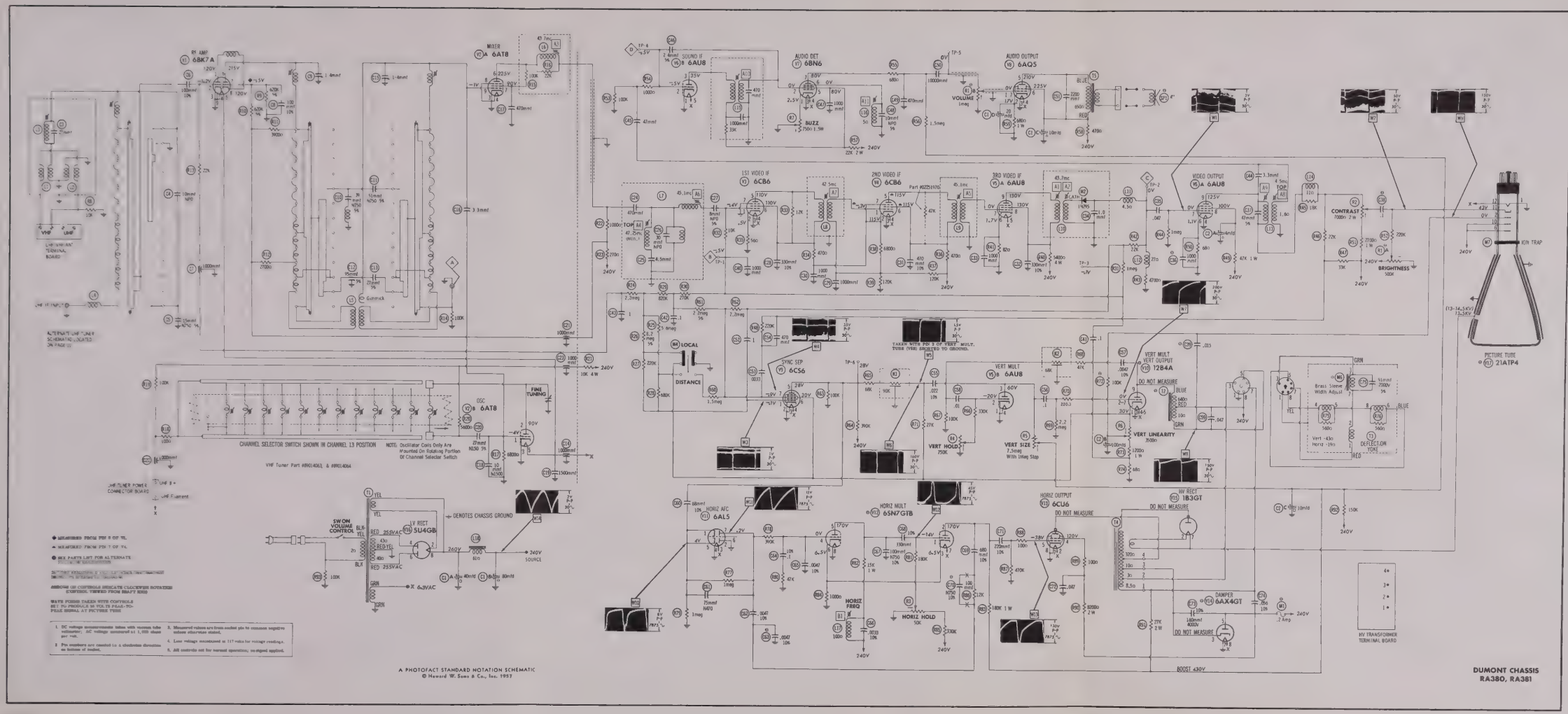
One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart).

CENTERING

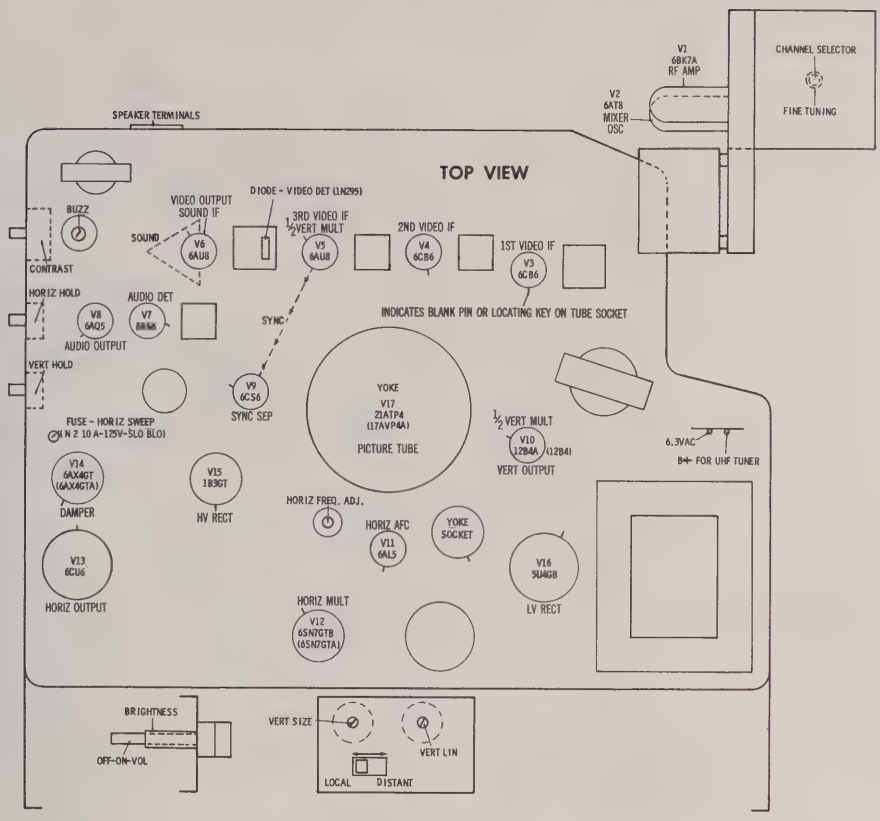
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America


RF AMP V1 6BK7A
MIXER V2A 6AT8
OSC V2B 6AT8
SOUND IF V6B 6AU8
AUDIO DET V7 6BN6
AUDIO OUTPUT V8 6AQ5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5A 6AU8
VIDEO OUTPUT V6A 6AU8
SYNC SEP V5 6CS6
VERT MULT V5B 6AU8
VERT MULT VERT OUTPUT V10 12B4A
HORIZ AFC V11 6AL5
HORIZ MULT V12 6SN7GTB
HORIZ OUTPUT V13 6CU6
HV RECT V15 1B3GT
LV RECT V16 5U4GB
DAMPER V14 6AX4GT
PICTURE TUBE V17 21ATP4
ION TRAP
CONTRAST
BRIGHTNESS
VOLUME
SW ON VOLUME CONTROL
FINE TUNING
LOCAL
DISTANCE
VERT HOLD
VERT SIZE
VERT LINEARITY
HORIZ FREQ
HORIZ HOLD
DEFLECTION YOKE
Brass Sleeve Width Adjust
Vert -43n
Horiz -19n
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
NOTE: Oscillator Coils Only Are Mounted On Rotating Portion Of Channel Selector Switch
VHF Tuner Part #8901A063, & #8901A064
VHF TUNER POWER CONNECTOR BOARD
VHF B+
VHF Filament
VHF LINE
VHF ANTENNA TERMINAL BOARD
ALTERNATE VHF UNIT SCHEMATIC LOCATED ON PAGE 11
DENOTES CHASSIS GROUND
6.3VAC
240V SOURCE
HV TRANSFORMER TERMINAL BOARD
BOOST +330V
DO NOT MEASURE
TAKEN WITH PIX 3 OF VERT MULT. TUBE (V8B) GROUNDED TO CHASSIS
TAKEN WITH PIX 3 OF VERT MULT. TUBE (V8B) SHUNTED TO GROUND.
ALIGNED FROM PIX 5 OF V4.
MEASURED FROM PIX 7 OF V4.
SEE PARTS LIST FOR ALTERNATE
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 cycles per sec.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957
DUMONT CHASSIS RA380, RA381

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

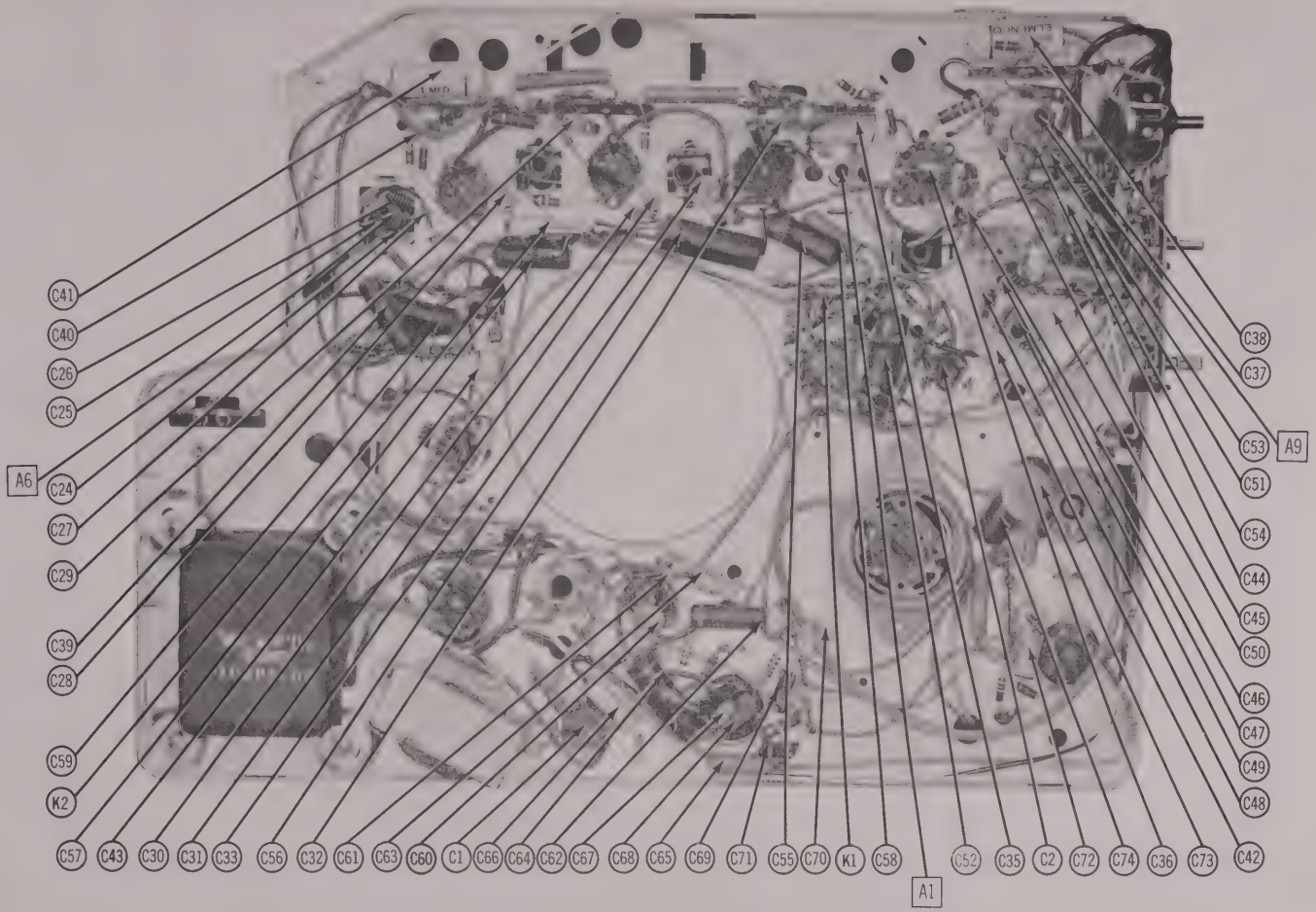
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V16

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, Diode (M2), V6
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V17
Has pic, no sound - V6, V7, V8

SYNC FAILURE
No vert. sync - V9
No horiz. sync - V9, V11
No vert. or horiz. sync - V9

SWEEP FAILURE
No raster, has sound - Fuse (M1), V11, V12, V13, V14, V15, V17
No vertical deflection - V5, V10
Poor vert. linearity or foldover - V5, V10
Poor horiz. linearity or foldover - V12, V13, V14
Narrow picture - V12, V13, V14, V16
Vert. off freq. - V5, V10
Horiz. off freq. - V12



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (B). Positive to chassis.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Fig. 1	High side to point (A) thru network (Fig.1). Low side to chassis.	43.7MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point (C). Common to chassis.	A1, A2, A3	Adjust for maximum negative reading on VTVM.
2.	"	"	47.25MC	"	"	A4	Adjust for MINIMUM deflection.
3.	"	"	45.1MC	"	"	A5, A6	Adjust for maximum negative reading on VTVM.
4.	"	"	42.5MC	"	"	A7	"
5.	"	"	43.7MC	"	"		Retouch A3 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Fig. 1	High side to point (A) thru network (Fig.1). Low side to chassis.	44.0MC (10MC Swp)	42.5MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 47K to point (C). Low side to chassis.		Check for response similar to Fig. 2. Retouch A1 thru A7, if necessary for desired response.

SOUND IF ALIGNMENT

Set buzz control (R7) at center of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 7 (grid) of 6AU8 (V6). Low side to chassis.	Not used	4.5MC (400∿ AM)	Any non-interfering channel	USE VTVM. DC probe thru 470K to point (D). Common to chassis.	A8	Adjust for maximum negative reading on VTVM.
8.	"	"	"	"	"	Vert. Amp. thru detector probe (Fig.3) to pin 11 (cathode) of picture tube. Low side to chassis.	A9	Adjust for MINIMUM 400∿ scope indication.

Tune in a strong TV station and adjust for normal picture. Adjust A10 and A11 for maximum volume and MINIMUM distortion. Reduce signal strength by using a step attenuator or disconnecting antenna and retouch A10 and A11 for maximum volume and MINIMUM distortion. Adjust buzz control (R7) for best sound.

VHF OSCILLATOR ALIGNMENT

Turn the set on and set the fine tuning in the center of its range. Turn channel selector to each channel to be adjusted and adjust the proper slug accessible thru a hole in the front of the tuner chassis. Adjust for best picture and sound. NOTE: The fine tuning is in mid-position when the flat of the shaft faces upward.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

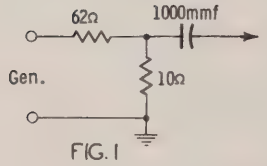


FIG. 1

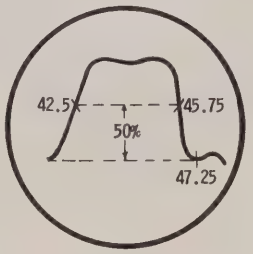


FIG. 2

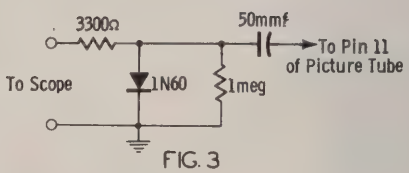
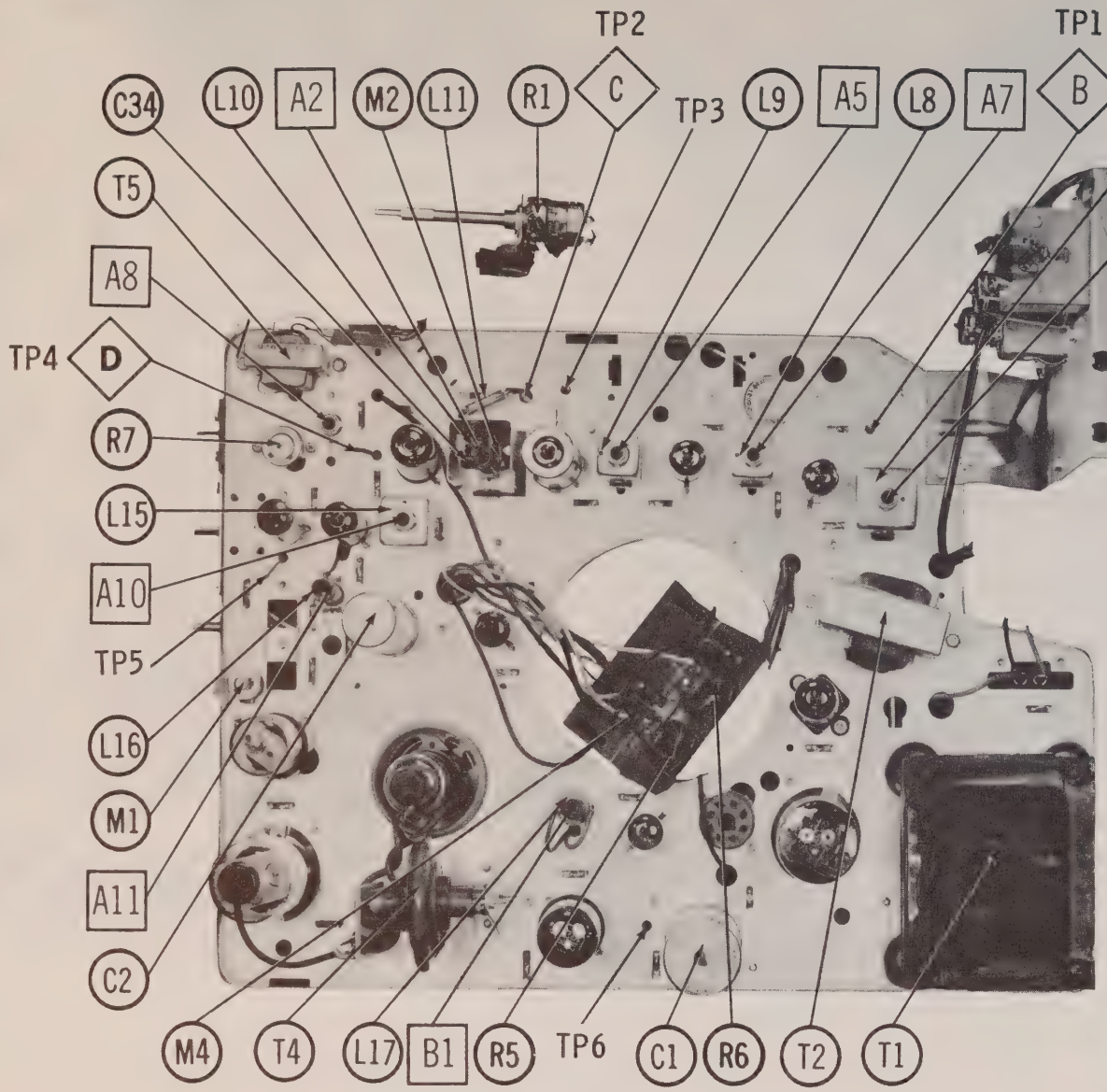


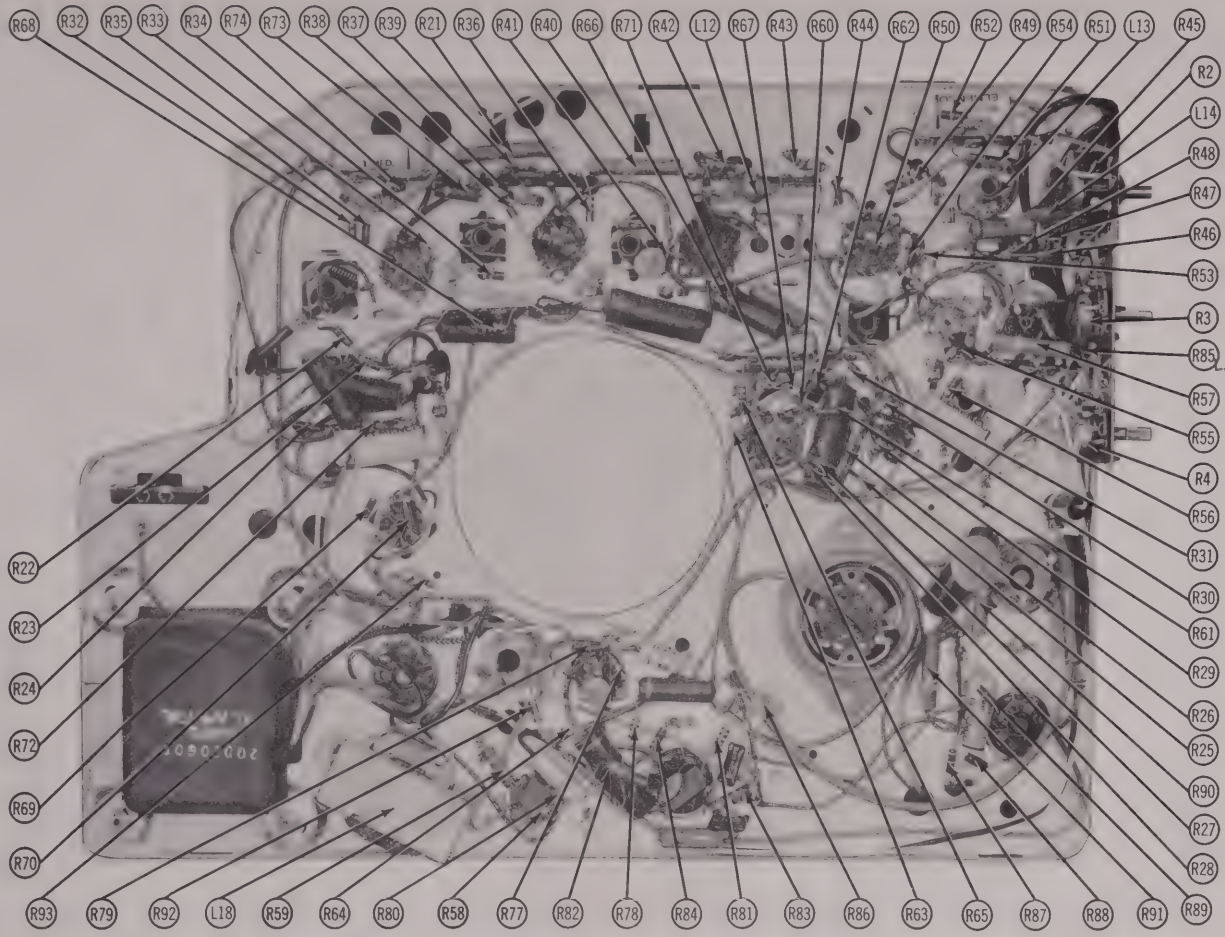
FIG. 3



TP1	AGC	.5V
TP2	Video Detector	0V
TP3	AGC	0V
TP4	Sound IF Grid	-.5V
TP5	Sound Output	0V
TP6	AFC	28V

CHASSIS TOP VIEW

DUMONT CHASSIS RA380, RA381



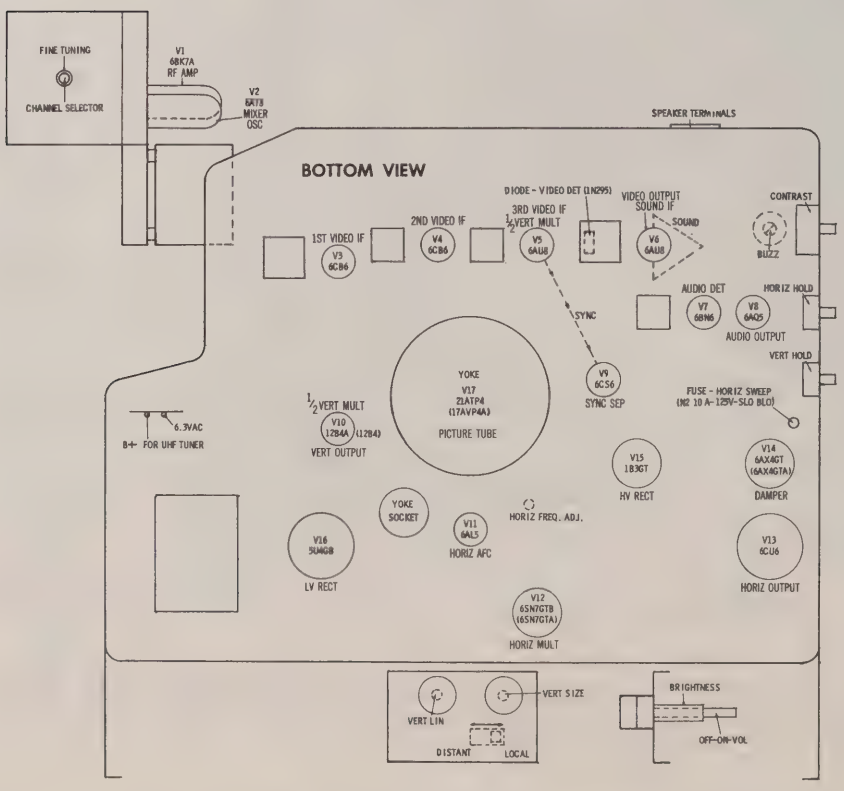
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

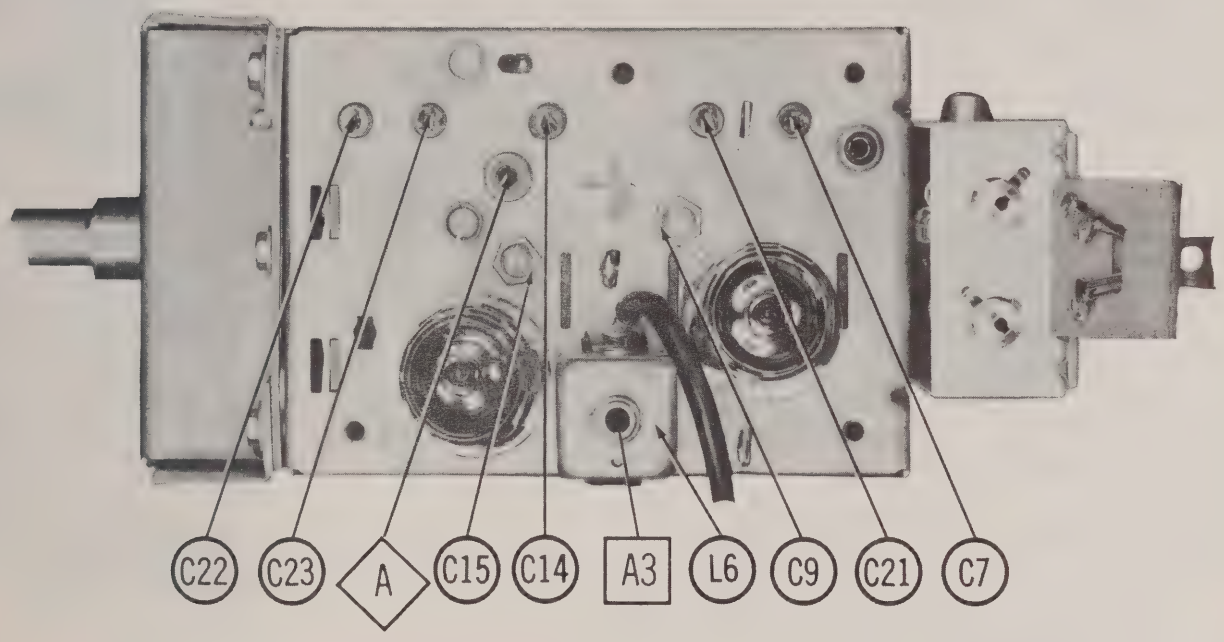
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7A	INF	3Meg	0Ω	0Ω	.1Ω	†4200Ω	300K	INF	0Ω
V2	6AT8	6800Ω	†15K	0Ω	0Ω	.1Ω	†1300Ω	†100K	0Ω	100K
V3	6CB6	750K	56Ω	0Ω	.1Ω	• 470Ω	• 470Ω	0Ω		
V4	6CB6	70K	75K	0Ω	.1Ω	†530Ω	†530Ω	75K		
V5	6AU8	0Ω	• 580K	• ‡6Meg	0Ω	.1Ω	82Ω	.1Ω	†5400Ω	†5400Ω
V6	6AU8	0Ω	100K	†55K	0Ω	.1Ω	68Ω	1Meg	†47K	†7700Ω
V7	6BN6	•400Ω	.4Ω	0Ω	.1Ω	†22K	5Ω	‡1.5Meg		
V8	6AQ5	0Ω	680Ω	0Ω	.1Ω	†1200Ω	†530Ω	0Ω		
V9	6CS6	210K	0Ω	0Ω	.1Ω	†60K	††0Ω	1.2Meg		
V10	12B4A	• 1500Ω	2.2Meg	0Ω	.1Ω	.1Ω	0Ω	2.2Meg	TP	†700Ω
V11	6AL5	1Meg	0Ω	.1Ω	0Ω	1Meg	NC	2Meg		
V12	6SN7GTB	• 190K	‡180K	1000Ω	2.4Meg	†15K	1000Ω	.1Ω	0Ω	
V13	6CU6	NC	.1Ω	NC	†8300Ω	470K	NC	0Ω	0Ω	TOP CAP 10Ω
V14	6AX4GT	NC	NC	¶	NC	†61Ω	NC	0Ω	.1Ω	
V15	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP 330Ω
V16	5U4GB	NC	15K	NC	43Ω	NC	40Ω	NC	15K	
V17	21ATP4	0Ω	110K	PIN 6 †61Ω	PIN 10 †61Ω	PIN 11 • 230K	PIN 12 .1Ω			

† MEASURED FROM PIN 2 OF V16.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 2 OF V14.
†† MEASURED FROM PIN 1 OF V10.
MEASURED FROM PIN 7 OF V4.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION
TP TIE POINT

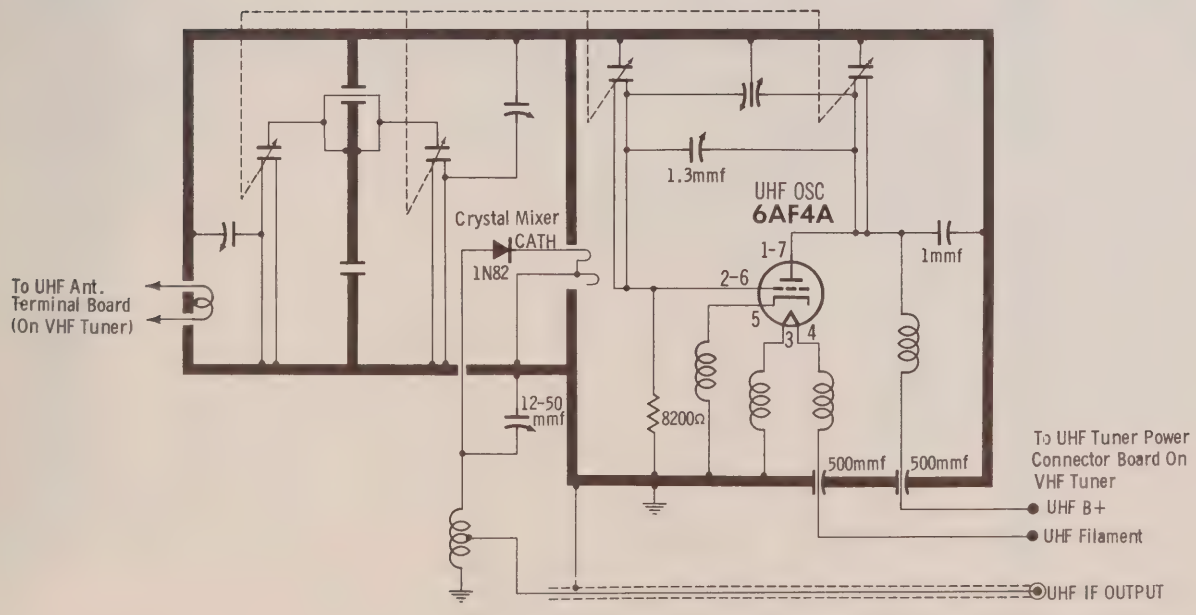


TUBE PLACEMENT CHART



RF TUNER-TOP VIEW

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



UHF Tuner Part #89014081

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC

SET 368 FOLDER 5

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BK7A	
V2	Mixer-Osc.	6AL8	
V3	1st. Video IF Amp.	6CH6	
V4	2nd. Video IF Amp.	6CH6	
V5	3rd. Video IF Amp. - Vert Mult.	6AL8	
V6	Video Output- Sound IF Amp.	6AU8	Note 3
V7	Audio Det.	6BH6	

ITEM No.	USE	TYPE	NOTES
V8	Audio Output	6AQ5	
V9	Sync Sep.	6C9S	
V10	Vert Mult.-Vert Output	12H4A	Note 1
V11	Horiz. AFC	6AL5	
V12	Horiz. Mult.	6BW7A/6BT8	Note 2
V13	Horiz. Output	6CU5	
V14	Damper	6A3AC3	Note 3
V15	HV Rectifier	1B3GT	
V16	LV Rectifier	5U4GB	

Note 1. Some versions may use 12H4 in this application.
Note 2. Some versions may use 6BN7GTA in this application.
Note 3. Some versions may use 6A3AC3A in this application.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			NOTES
	DUMONT Part No.	GENERAL ELECTRIC Part No.	SYLVANIA Part No.	
V17	21-A21P4	21-AT14-A 21-AT20-A ① 21-AT20P4-A 21-AT20P4-B 21-AT20P4-C 17-AV24-A ② 17-AV24P4-A 21-AT14P4-A 21-AT14P4-B 21-AT14P4-C 17-AT24P4-A ②	21-ATP4 21-ATP4-A 21-ATP4-B 21-ATP4-C 17-AVP4 17-AVP4-A 17-AVP4-B 17-AVP4-C 17-ATP4 17-ATP4-A ②	① Aluminized ② Silver screen "35"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING			REPLACEMENT DATA					
	CAP.	VOLT	DUMONT Part No.	AEROVOX Part No.	CORNELL-DUBILIER Part No.	MALLORY Part No.	PYRAMID Part No.	SANGAMO Part No.	SPRAGUE Part No.
C1A	40	600	03250457	AFH4-57-40	600E050	FP385 5	TMQ-92	U 35	TVL-4689
C	40	600			BR4045	TC26	TD-50-450	FM-4540	
C	10	600							
D	20	35				FP171			
C2A	4	250	03127452	AFH3-189-4	C1445	WT450			TVL-3806
B	100	50							
C	40	475							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		DUMONT Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C3	27		03152500	BFD-00025	DS-270	DCQ2F270J	ED-27	UC-3427		
C4	10		03184315	NPO-81 10	TCZ-10	CD6QC	TCO-10	ZT-5Q	5TCC-Q	NPO
C5	15		03160320	NT50-S1 15	TCH-15	CD10Q5U	TCT-15		5TCU-Q5	NT50 5%
C6	100		03154317	NPO-81 100	TCZ-100	CD7TU	TCO-100	ZT-S31	5TCC-T1	10%
C7	1000		03140642	EF-001	MFT-1000				503C-D1	
C8	100		03154317	NPO-81 100	TCZ-100	CD7TU	TCO-100	ZT-S31	5TCC-T1	10%
C9	1-4		03173500		S29-4		31U5-E	CT5S1		
C10	33		03153500	NT50-S1 39	TCH-39	CD5Q39C	TCT-39			NT50 5%
C11	51		03160360		TCN-51	CD5Q51C	TCT-51			NT50 5%
C12	95		03173660							5%
C13	27		03153500		TCZ-27	CD5Q27C	TCO-27			5%
C14	1000		03140643	EF-001	MFT-1000				503C-D1	
C15	1-4		03173600		S29-4		31U5-E	CT5S1		
C16	3.3		03153900	NPO-81 3.3	TCZ-3.3	CD6V33C	TCO-3.3	ZT-5S33	5TCCB-V33	
C17	470		03121560	BPD-00047	DD-471	BYA10Y47	ED-470	UC-5347	5GA-T47	
C18	10		03123970							N1500
C19	1500		03153710	BPD-0015	DD-152	BYA10D15	ED-0015	DC5D15	5HK-D15	
C20	15		03153700							N150 5%
C21	1000		03140642	EF-001	MFT-1000				503C-D1	
C22	1000		03140643	EF-001	MFT-1000				503C-D1	
C23	1000		03140643	EF-001	MFT-1000				503C-D1	
C24	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C25	4.5			NPO-81 4 7	TCZ-4R7	CD7V47C	TCO-4.7	ZT-5S47		
C26	30			NPO-81 30	TCZ-30	CD5QC	TCO-30			NPO
C27	6		03154070	NPO-81 5.6		CD5VE5C	TCO-5.6			NPO 5%
C28	330		03173840		DD-331	L10T33	ED-330			10%
C29	1000		03153700	BPD-001	DD-102	BYA8D1	ED-1000	DC5D1	5HK-D1	
C30	1000		03153700	BPD-001	DD-102	BYA8D1	ED-1000	DC5D1	5HK-D1	
C31	470		03173860		D8-471	L10T47	ED-470			10%
C32	330		03173840		DD-331	L10T33	ED-330			10%
C33	1000		03174100	BPD-001	DD-102	BYA8D1	ED-1000	DC5D1	5HK-D1	
C34	10			NPO-81 1.0	TCZ-1		TCO-1.0		5TCC-S1	
C35	.047	300	03140240	BPD-05	DF-503	CUB2E47		ED-1000	GEM-2147	STM-S47
C36	1000		03153800	BPD-001	DD-102	BYA8D1	ED-1000	DC5D1	5HK-D1	①
C37	47		03167470	NPO-S1 47	TCZ-47	CD7Q47C	TCO-47	ZT-5S47	5TCC-Q47	5%
C38	.1	300	03140595	P38M-1	DF-104	CUB2F1		GEM-502	5TM-P1	②
C39	.025	400	03160170	BPD-015	DD8-153	CUB2D253	ED-015	GEM-4115	4TM-S15	③
C40	1000		03153700	BPD-001	DD-102	BYA8D1	ED-1000	DC5D1	5HK-D1	
C41	.1	200	03140595	P38M-1	DF-104	CUB2F1		GEM-201	5TM-P1	
C42	.1	200	03140595	P38M-1	DF-104	CUB2F1		GEM-201	5TM-P1	
C43	.1	200	03140595	P38M-1	DF-104	CUB2F1		GEM-201	5TM-P1	
C44	3.3		03153900	NPO-81 3.3	TCZ-3R3	CD7AV33C	TCO-3.3	ZT-5S33	5TCCB-V33	
C45	47		03167470	S0-81 47	DE-470	L7S047	GP-47	UC-5407	5GA-Q47	
C46	2.4		03153600	NPO-S1 2.2	TCZ-2R2	CD7AV21C	TCO-2.2		5TCCB-V22	5%
C47	1000		03153700	BPD-001	DD-102	BYA8D1	ED-1000	DC5D1	5HK-D1	
C48	100		03154000	NPO-81 10	TCZ-10	CD5QC	TCO-10	ZT-5S1	5TCC-Q	NPO 5%
C49	470		03153040	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C50	10000		03153920	BPD-01	DD-103	BYA8B1	ED-01	DC5U	5HK-S1	
C51	2200		03153630	BPD-0023	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C52	.1	200	03140350	P38M-1	DF-104	CUB2F1		GEM-211	5TM-P1	
C53	.0033	400	03140350	BPD-0033	DD-332	CUB4D33	GP-3300	GEM-4332	4TM-D33	
C54	470		03153040	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C55	.022	400	03160660							10%
C56	.1	400	03141120	P48M-1	DF-104	CUB4F1		GEM-401	4TM-P1	10%
C57	.0047	600	03141360							10%
C58	.01	300	03140000	BPD-01	DD-103	CUB2E1	GP-10000	GEM-211	5TM-S1	
C59	.047	300	03140340	BPD-05	DF-503	CUB2E47		GEM-2147	5TM-S47	
C60	68		03173500		D8-680	L10Q68	ED-68			10%
C61	75		03172510							N470
C62	.0047	600	03140580							10%
C63	.0047	400	03140580							10% ③
C64	.1	200	03140320					GEM-201		10%
C65	.0047	400	03140580							10%
C66	.0033	400	03139688							10%
C67	100		03135810	N750-S1 100	TCN-100	CD7TU	TCT-100	NT-S31	5TCU-T1	N750 10%
C68	330		03920490	1469-00053		5W5T33			MS-333	10%
C69	680		03177090	1464-00068		1E5T68			MS-368	10%
C70	100		03135810	N750-S1 100	TCN-100	CD7TU	TCT-100	NT-S31	5TCU-T1	N750 10%

CAPACITORS (cont)

ITEM No.	RATING		DUMONT Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
	CAP	VOLT								
C71	220		03173900		1469-00022		22R5T22		MS-322	10%
C72	047	400	03140100		BPD-05	DF-503	CUB4E47	GEM-4147	4TM-S47	
C73	.01	1000	03-59916							10%
C74	.056	400	03140710							10%
C75	5	5000								5%

① Some versions use a 3300MMF, 10%, @ 500V in this application (Part #03173940).
② Some versions use a .22MFD @ 300V in this application (Part #03190442).
③ Some versions use a .1MFD @ 400V in this application (Part #03140320).
④ Some versions may use a .0068MFD in this application (Part #03140630).
⑤ Not used in some versions.

CONTROLS

ITEM No.	RATING		DUMONT Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
	RESISTANCE	WATTS						
R1A	500K	1/4	01070263	F1-40	RTV-11		UB14938	Brightness - Note 1
B	1Meg	1/4		R3-53	Not Req.		Not Req.	Volume
C	Switch			KS-1	Not Req.		Not Req.	
R2A	7000Ω	2	01071001	WW-T53 *	A43-7500	WPK7500		Contrast
B	Shaft			Not Req.	FS-3	QJ-133		
R3A	50K	1/4	01070130	B-31	A47-50K-S	QJ-133	U35	Horiz. Hold
B	Shaft	1/4	01070181	Not Req.	FS-4	Not Req.	Not Req.	
R4A	750K			B-59	A47-750K-S	QJ-133	TA161	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	7.5Meg	1/4	01070161	AB-59 *	A47-7.5Meg-S *	BU-143 *	PTA561, *	Vert. Size With 1Meg stop
B	Shaft							
R6A	3300Ω	1/4	01070161	AK-1	FKS-1/3	TM3-K1	Not Req.	Vert. Lin.
B	Shaft			AB-9	A47-4000-S	BU-114	PTA352L	
R7	750Ω	1 1/2	01070171	AK-1	FKS-1/3	TM3-K1	Not Req.	Buzz - wire wound
				39-800			FL-750	

* File flat on shaft as required to fit knob.
+ Use a 1Meg resistor in series with the right hand terminal
Note: Alternate part #01070161 used in 17" chassis.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		DUMONT Part No.	IRC Part No.	NOTES
	OHMS	WATT			
R8	10K		03031890	BTB-10K	
R9	620K 5%		03031150	BTS-620K 5%	
R10	820K 5%		03031250	BTS-820K 5%	
R11	3900Ω		03031840	BTB-3900	
R12	3700Ω			BTB-3700	
R13	33K		03031650	BTB-33K	
R14	100K		03032010	BTB-100K	
R15	100K		03032010	BTB-100K	
R16	22K		03031930	BTB-22K	
R17	6500Ω		03031870	BTB-6500	
R18	100Ω		03033360	BTB-100	
R19	100K		03032010	BTB-100K	
R20	5600Ω		03031880	BTB-5600	
R21	10K	4	03300780	PW10-10K	
R22	1000Ω		03032430	BTB-1000	
R23	270Ω		02151700	BTB-270	
R24	2.2Meg		03152635		
R25	5.6Meg		03152230	BTB-5.6Meg	
R26	8.2Meg	1/2	03151430		
R27	220K		03152360		
R28	680K		03152590		
R29	820K		03152120		
R30	270K		03152060	BTB-270K	
R31	1Meg		03152130	BTB-1Meg	
R32	10K		03151890		
R33	12K		03151900	BTB-12K	
R34	470Ω		03152490	BTB-470	
R35	56Ω		03151650	BTB-56	
R36	470Ω		03152400		
R37	120K		03152020	BTB-120K	
R38	6800Ω		03152470	BTB-6800	
R39	120K	4	03152020	BTB-120K	
R40	5400Ω		02150520		
R41	82Ω		03151640	BTB-3200	
R42	22K		03151930	BTB-22K	
R43	4700Ω		03151850	BTB-4700	
R44	1Meg		03152600	BTB-1Meg	
R45	18K		03151920	BTB-18K	
R46	22K		03151930	BTB-22K	
R47	33K		03151950	BTB-33K	
R48	320 K		03152580	BTB-320K	
R49	47K	1	03154070	BTA-47K	
R50	56Ω		03151610	BTA-56	

Note 1. Later versions use a 18K (Part #03151900) in this application.

ITEM No.	RATING		DUMONT Part No.	IRC Part No.	NOTES
	OHMS	WATT			
R51	3700Ω	1	02154820	BTA-3700	
R52	220K		02152560	BTB-220K	
R53	100K		02152540	BTB-100K	
R54	1000Ω		02152420	BTB-1000	
R55	680Ω		02152410	BTB-680	
R56	1.5Meg		02152150	BTS-1.5Meg	
R57	22K	2	02156500	BTB-22K	
R58	470Ω	1	02154750	BTA-680	
R59	680Ω	1	02154750	BTA-680	
R60	1.5Meg		02152540	BTB-1.5Meg	
R61	2.2Meg 5%		03151380	BTS-2.2Meg 5%	
R62	2.2Meg		02156170	BTA-2.2Meg	
R63	100K		01252010	BTB-100K	
R64	390K		01252090	BTB-390 K	
R65	68K		02151990	BTB-68K	
R66	330K		02152070	BTB-330K	
R67	100K		02152010	BTB-100K	
R68	47K		02151970	BTB-47K	
R69	2.2Meg		02152630	BTB-2.2Meg	
R70	220Ω		02152380	BTB-220	
R71	27K		02151940	BTB-27K	
R72	100K		02152540	BTB-100K	Note 1
R73	1200Ω	1	02154760	BTA-1200	
R74	68Ω		02152350	BTB-68	
R75	560Ω				
R76	56Ω				
R77	1Meg		02152130		
R78	390K		02152090		
R79	1Meg		02152150		
R80	47K		02151970	BTA-47K	
R81	180K		02152040		
R82	15K	1	02154910		
R83	180K		02152040		
R84	1000Ω		02151770	BTB-1000	
R85	330K		02152090		
R86	12K		02151900	BTB-12K	
R87	100K		02152540	BTB-100K	
R88	100Ω		02152360	BTB-100	
R89	100Ω		02152360	BTB-100	
R90	8200Ω	2	02156900	BTA-8200	
R91	27K	2	02157940	BTB-27K	
R92	150K		02152550	BTB-150K	
R93	100K		02042540	BTB-100K	

TRANSFORMER (POWER)

ITEM No.	RATING				DUMONT Part No.	REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3		Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No
T1	117VAC	540VCT	5V	6.3V	20010601		P-3838 ①		26R3B ①	

① Type 6.3V @ 1.2A filament winding.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		DUMONT Part No.	Halldorson Part No.	Merit Part No.	RCA TYPE No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No
T2	Vert Output Alt Vert Output Yoke-Horiz. (12.93MH, (90°) Vert. (44MH) Rear Cover & Centering Device	20010331-1 20010331 21-85521 21000771	Z1804 DF606 1 2	A-3037 MDF-91	222T1 237D1	V313 V-90F12, 47	A-8123 DY-33A 1 2	26852 Y-14 1 2	A-102X Y-40 & NW5 ②
T4	Horiz. Output	20010671	FB419 * 1 3	HVO-38 * 2351 * 1 3		X094 * 1 3	HO-256 * 1 3	FLY-16 * 1 3	YC 1 D-30 * 1 3

① Use original rear cover and centering device, and original horizontal damping network, if necessary.
② Cut and form a piece of .010 gauge flat paper inside the yoke itself and support with an acetate cement, to provide an insulation between the width sleeve and the yoke proper.
③ Drill new mounting hole(s).
* This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Tried Replacement Connections
4	9	9	9	9	9	9	9
3	7	7	7	7	7	7	7
2	5	5	5	5	5	5	5
1	3	3	3	3	3	3	3

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DUMONT Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No.	
T5	11K	6-8Ω	30010671	Z1003 ①	A-3903 ①	A-3549 ①	34S80 ①	S-51X ① ③	① Drill one new mounting hole. ② Tape center tap on primary winding.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DUMONT Part No.	QUAM Part No	
SP1	4"	PM	8-9Ω	18003789 ①	4A0T26.5	① Used in Brewster & Berkeley Models
	4" x 6"	PM		18003924 ②		② Used in Bedford Model
	5"	PM		18003583 ③		③ Used in Bryan Model
	8"	PM	8-9Ω	18003755 ④	SA12PA	④ Used in Belmore Model

COILS (RF-IF)

ITEM No.	USE	NOTES
L1	Ant. Trans.	20009922
L3	Ant. Trans.	20009283
L5	IF Trap	21014481
L4	UHF IF Input Coil	21014302

ITEM No.	USE	NOTES
L6	UHF IF Trans.	20010441
L8	Mixer Plate Coil	21014541

ITEM No.	USE	REPLACEMENT DATA				NOTES
		DUMONT Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	
L7	1st. Video IF	30010521				Includes 47.25MC Trap, choke and capc.
L8	2nd. Video IF	30010531		17-500 *	7V-136 *	
L9	3rd. Video IF	30010525		17-500 *	7V-136 *	
L10	Det. Trans.	20010551				Includes Cap.
L11	RF Choke	21013452		19-8038		39 Microhenries
L12	Shunt Peaking Coil	21014359		19-3600	7V-188	6144
L13A	4.5MC Trap	21014381			7V-120	540 Microhenries
B	1st. Sound IF					
L14	Series Peaking Coil	21014358		19-3126		6153
L15	2nd. Sound IF	30010561		17-3496 *	7V-113 *	120 Microhenries Includes 470MMF & 1000MMF Cap., & 33K resistor
L16	Quadrature Coil	21014651		19-1005 *	7V-121 *	6203 *
						1450 *

* Use adaptor plate.
+ Drill new mounting hole.
= Radius 33K resistor and .001MFD cap. in plate circuit.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DUMONT Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	RCA TYPE No.	Ram Part No.	Thordarson Part No.	
L17			21014811	19-1576	TV-185				SH-5	35 to 80 Millihenries

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 ~(+)	DUMONT Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Tried Part No
L18	.355A	61Ω	2.5 HY.	21014471	C5037 ①	C-2991 ①	C-2326 ①	26C46	C-17X ①

① Drill one new mounting hole

DUMONT CHASSIS RA380, RA381

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	DUMONT PART No.	REPLACEMENT DATA
K1	Vert. Integrator	90K and Cap.	88001481	
K2	Vert. Feedback	68K and Cap.	88001482	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DUMONT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	N	.2A 125V S/B	11006050 ①	11006400	333.200 (N 2/10A)	346008	N 2/10	HN 0 to 3/10

① Some versions use a .25A fuse (Part #11006060). The manufacturer states to use the larger value in replacements.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		DUMONT PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295	26001891	1N34A	1N60	Video Detector (Pigtail)

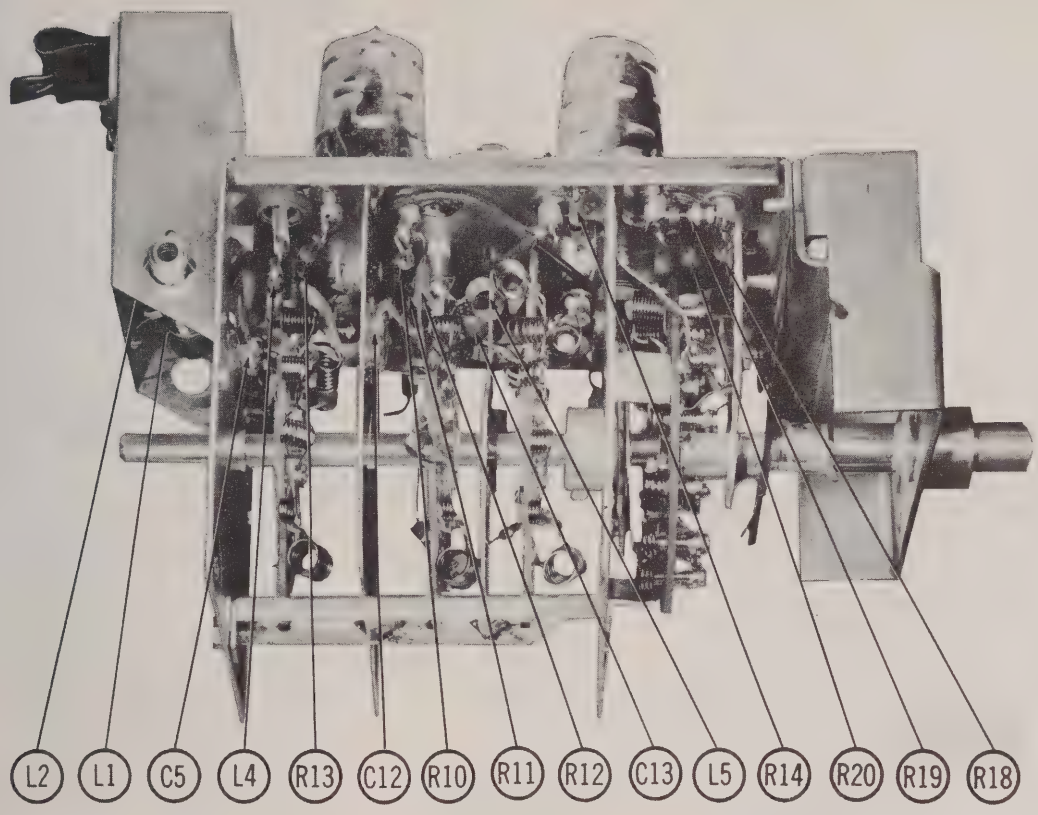
MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M3	Tuner	89014064	VHF - 21" Models
	Tuner	89014063	VHF - 17" Models
	Tuner	89014081	UHF
M4	Switch	05004330	Local-Distant (DPDT)
M5	Centering Device	29000771	Includes yoke rear cover
M6	Width Sleeve	42012521	21" Models
	Width Sleeve	42012522	17" Models
M7	Ion Trap	22000833	

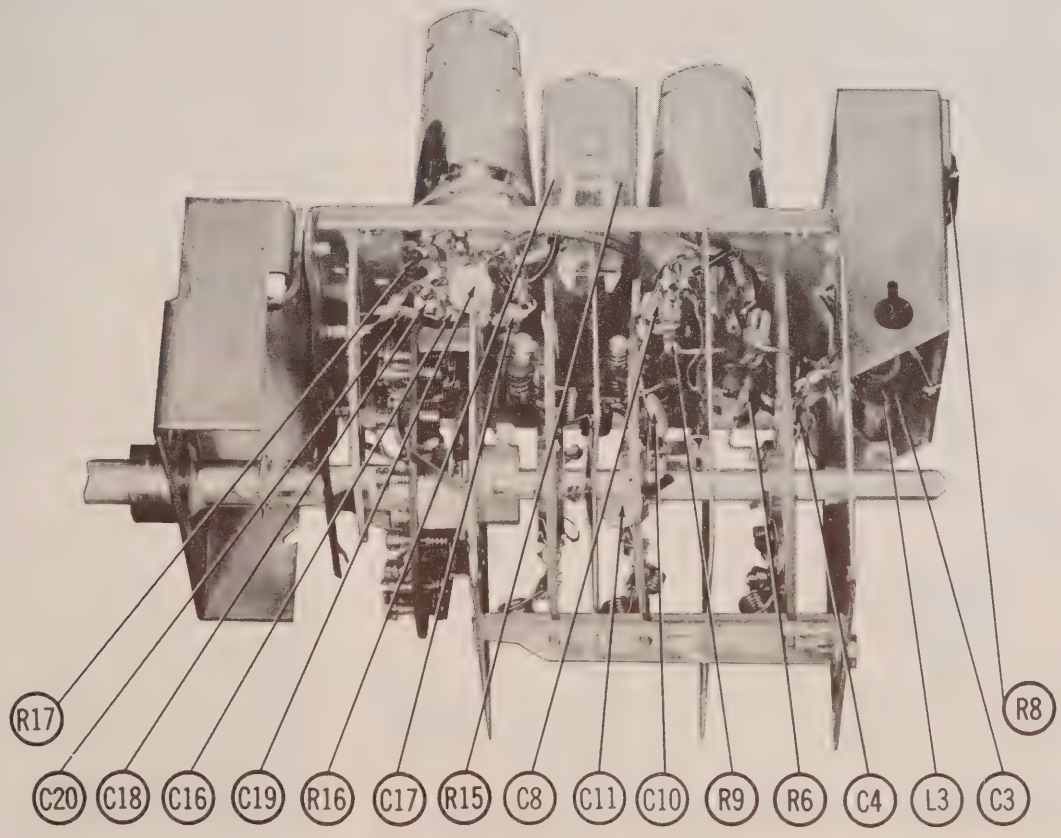
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

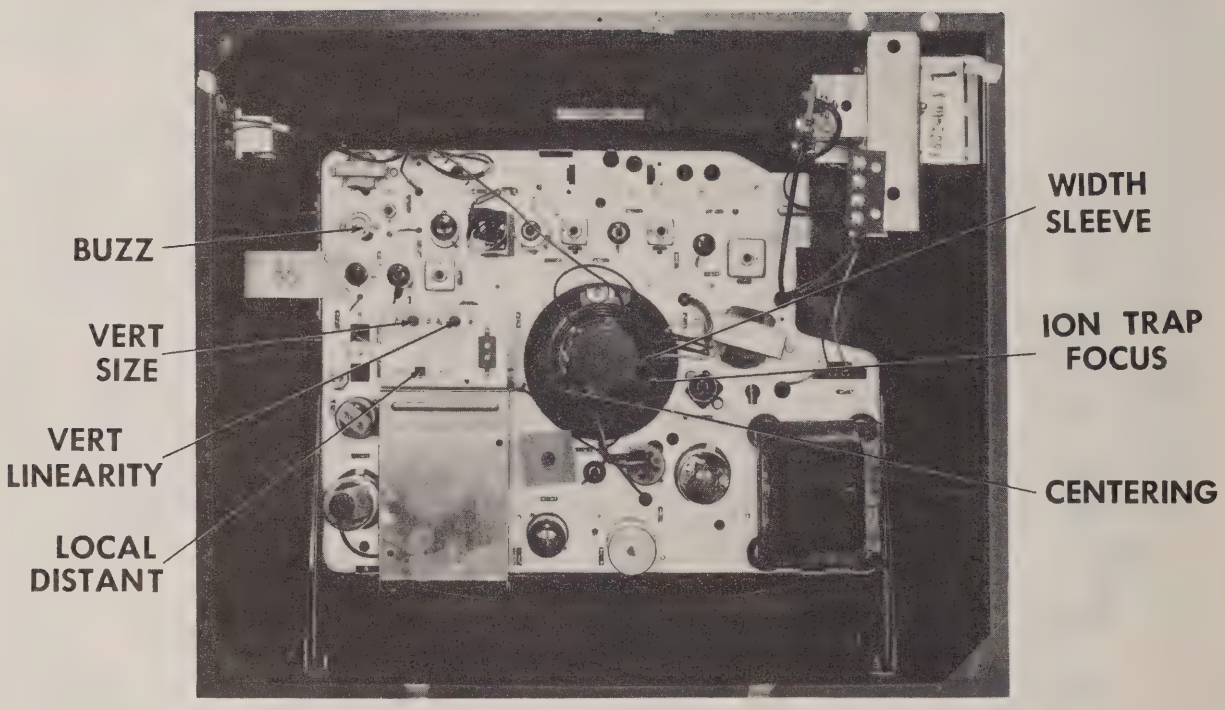
NAME	PART NO.	DESCRIPTION
Safety Glass	45007482	21" Models
Safety Glass	45007481	17" Models
Mask	64012031	21" Models
Mask	64012051	17" Models
Knob	45007541	Side Controls, Brewster Model
Knob	45007542	Side Controls, Berkeley Model
Knob	45007543	Side Controls, Belmore, Bryon and Bedord Models
Knob	45007552	Channel Selector, VHF Models
Knob	45007551	Channel Selector, UHF Models
Knob	45007564	Fine Tuning, VHF Models
Knob	45007566	Fine Tuning, UHF Models
Knob	45007565	Brightness
Knob	45007611	On-off-volume
Dial	45006472	UHF



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE



CABINET—REAR VIEW

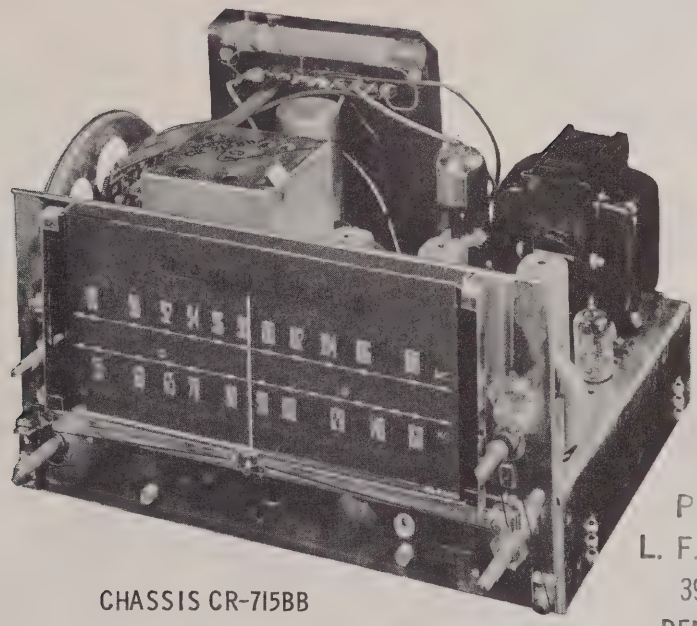
HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station, preferably with a test pattern.

Set the horizontal hold control at the center of its range.

Adjust the horizontal frequency slug (B1) to the center of its effective synchronizing range, then momentarily remove the signal by switching off channel and back again. The picture should pull in sync. If it does not, readjust B1 until the picture pulls into sync.

MAGNAVOX CHASSIS
CR-715AA, AB, BB



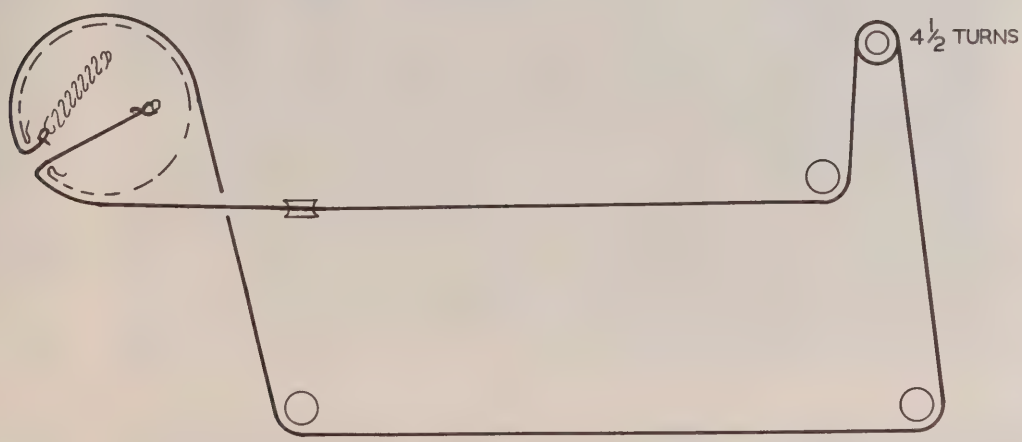
CHASSIS CR-715BB

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MAGNAVOX CHASSIS
CR-715AA, AB, BB

TRADE NAME	Magnavox Chassis CR-715AA, CR-715AB, CR-715BB		
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana		
TYPE SET	AC Operated FM-AM Receiver		
TUBES (Nine)	Types 6BZ6 RF Amplifier, 6U8 FM Mixer-Osc., 6BE6 AM Converter, 6BA6 1st. IF Amplifier, 6BA6 2nd. FM IF Amplifier, 6AL5 Ratio Det., 6AV6 AF Amp., 6AQ5 Output, 6X5GT Rectifier		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.46 Amp. @ 117 Volts AC (48 Watts)
TUNING RANGE-BROADCAST	540KC-1620KC	FREQ. MOD.	88MC-108MC

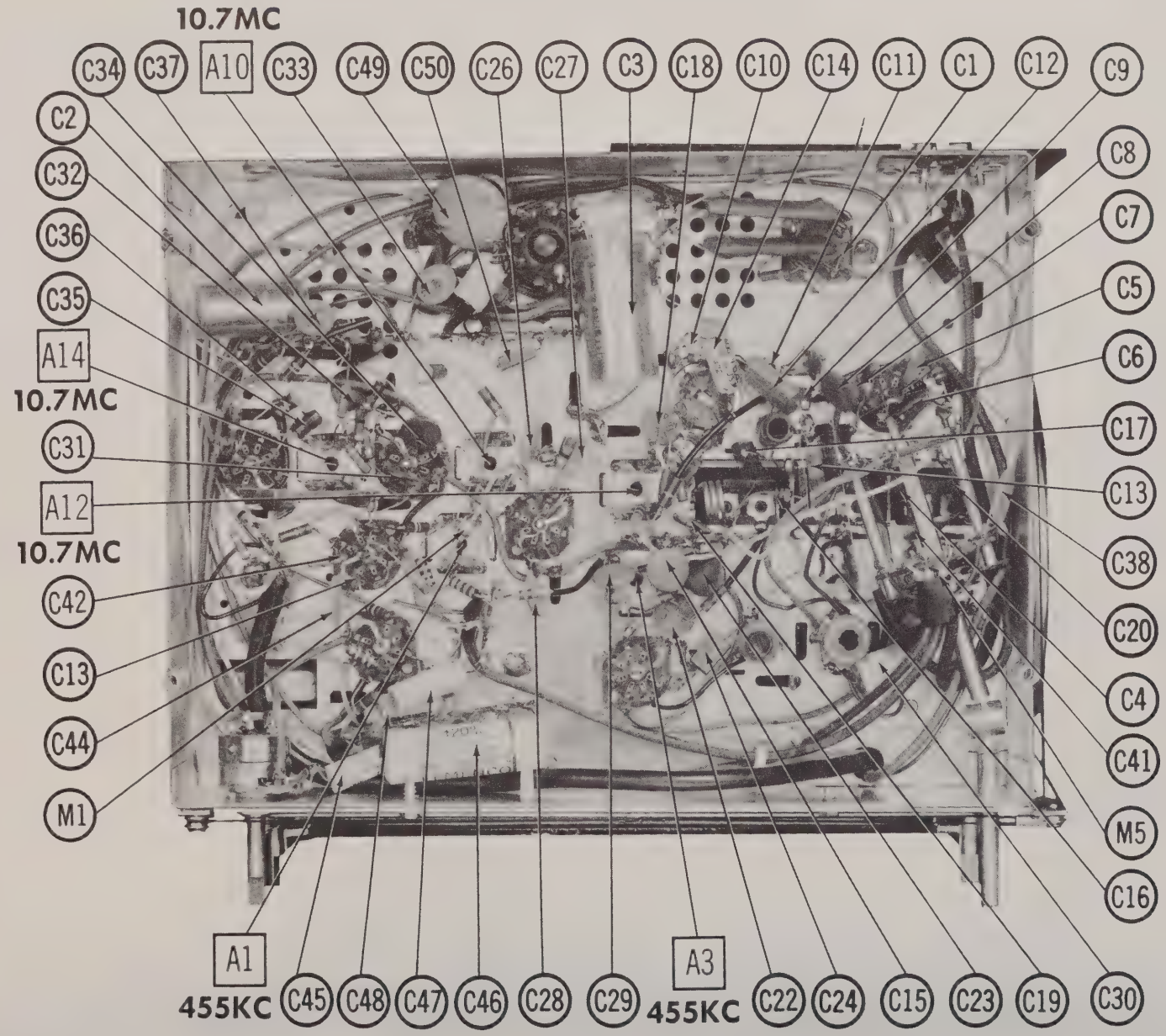
TUNING GANG FULLY OPEN



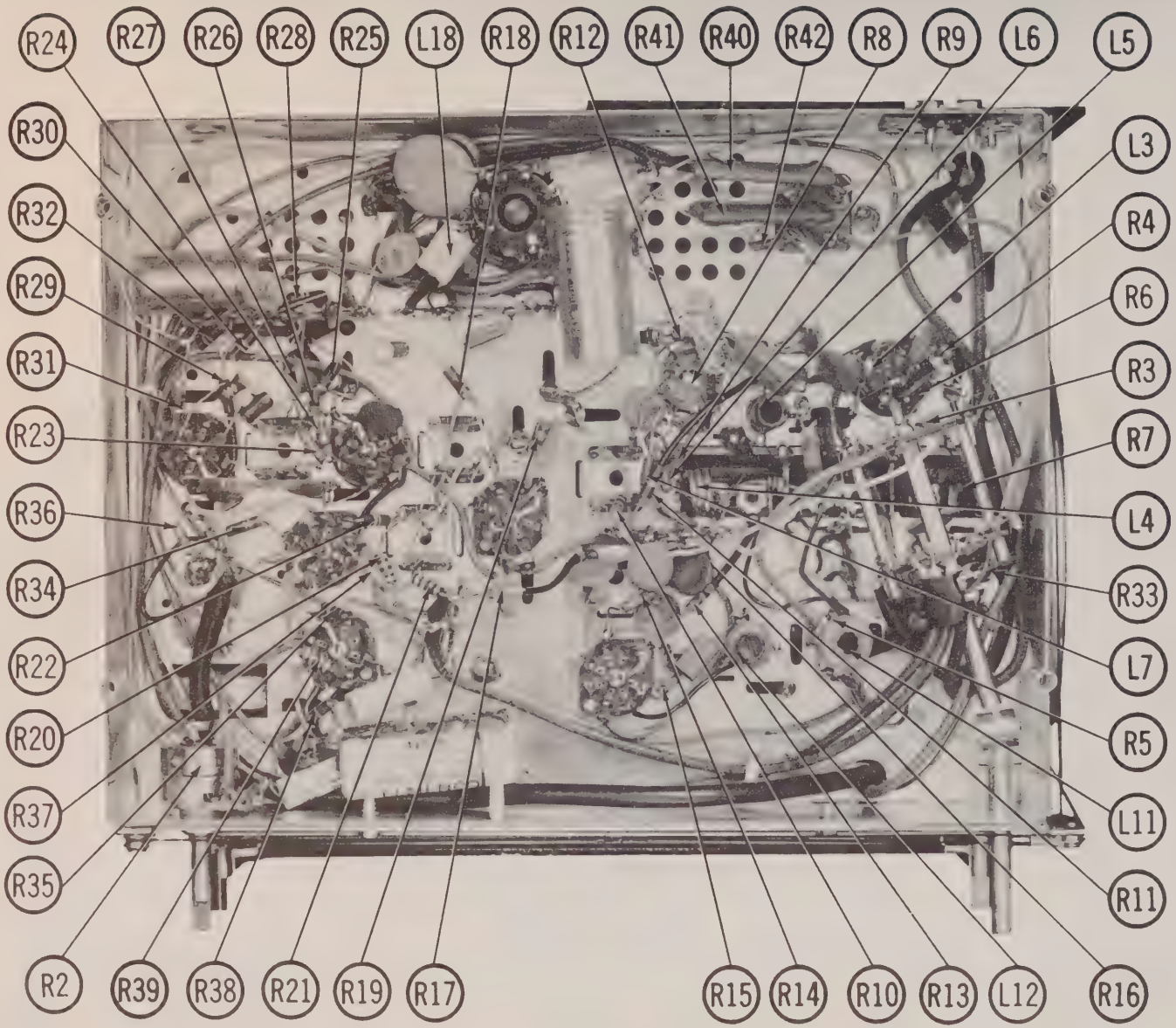
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



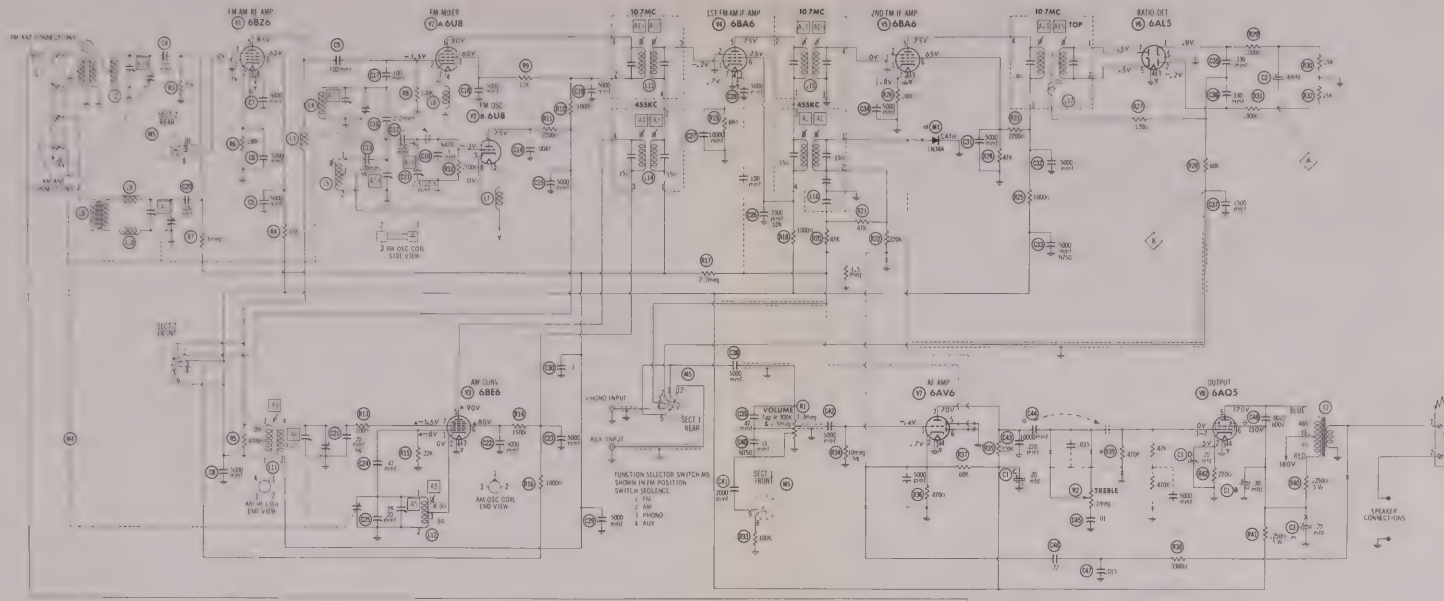
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

MAGNAVOX
Ch. CR-715AA



RESISTANCE READINGS

TUBE	TYPE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	▲ 3.6Meg 25K	180Ω	0Ω	3Ω	▲ 250Ω	▲ 18K	0Ω		
V2	6U8	▲ 470Ω	130K	▲ 15K	2Ω	3Ω	▲ 350Ω	0Ω	1Ω	270Ω
V3	6BE6	▲ 22K	5Ω	3Ω	0Ω	▲ ▼ 250Ω	▲ ▼ 5000Ω	▲ 2.4Meg		
V4	6BA6	2.4Meg	0Ω	3Ω	0Ω	▲ 350Ω	▲ 350Ω	68Ω		
V5	6BA6	2Ω	0Ω	3Ω	0Ω	▲ 350Ω	▲ 5500Ω	100Ω		
V6	6AL5	16K	17K	3Ω	0Ω	INF	0Ω	INF		
V7	6AV6	10Meg	470Ω	0Ω	3Ω	0Ω	0Ω	▲ 220K		
V8	6AQ5	470K	270Ω	0Ω	3Ω	▲ 465Ω	▲ 275Ω	470K		
V9	6X5GT	NC	3Ω	100Ω	TP	75Ω	TP	0Ω	20K HM/ay	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
▲ MEASURED IN "AM" POSITION
▼ MEASURED FROM PIN 8 OF V9
NC NO CONNECTION
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are as shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

368-6

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400Ω Mod.)	AM	1000KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	10MMF	High side thru dummy to AM antenna terminal. Low side to chassis.	1400KC	"	1400KC	"	A5, A6, A7	"
3.	"	"	600KC	"	600KC	"	A8, A9	Adjust for maximum output. Repeat steps 1 and 2.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	10.7MC (Unmod)	FM	Low frequency end of dial.	DC probe thru 1Meg to point (A). Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 1Meg to point (B). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 4 and 5.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD 1000Ω in series	High side to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	10.7MC (300KC Swp)	FM	Low frequency end of dial.	Vert. Amp. thru 1Meg to point (A). Low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. thru 100K to point (B). Low side to chassis.	A15	Reconnect stabilizing capacitor (C2). Adjust for response curve similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and crossover lines. Repeat steps 4 and 5.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	120Ω & 150Ω Carbon Resistors	High side thru 120Ω to FM antenna terminal. Low side thru 150Ω to chassis.	106MC	FM	106MC	DC probe thru 1Meg to point (A). Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
7.	"	"	90MC	"	90MC	"	A19	Adjust for maximum deflection. Repeat steps 6 and 7.

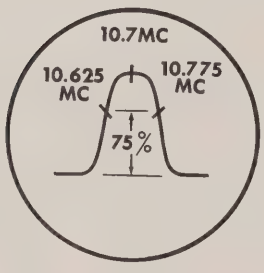


FIG. 1

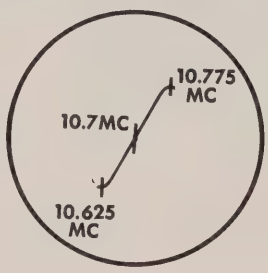


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BZ6	
V2	FM Mixer-Oscillator	6U8	
V3	AM Converter	6BE6	
V4	1st. IF Amplifier	6BA6	
V5	2nd. FM IF Amplifier	6BA6	

ITEM No.	USE	TYPE	NOTES
V6	Ratio Detector	6AL5	
V7	AF Amplifier	6AV6	
V8	Output	6AQ5	
V9	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1 A	▲35	450	270021-59	AFH4-71	DO640	FP429	TMQ-90	Q-380	TVL-4725.4
B	■30	450			BR1045	TC72	TD-10-450	TD-10-450	
C	▲20	450							
D	20	25							
C2	4	50	270027-27	PRS150V4	BBR4-50	TC30	TD-4-50	FM-0504	TVA-1402
C3	20	350	270027-20 (Note 1)	PRS450V20	BR2035	TC65	TD-20-350	FM-4502	TVA-1608

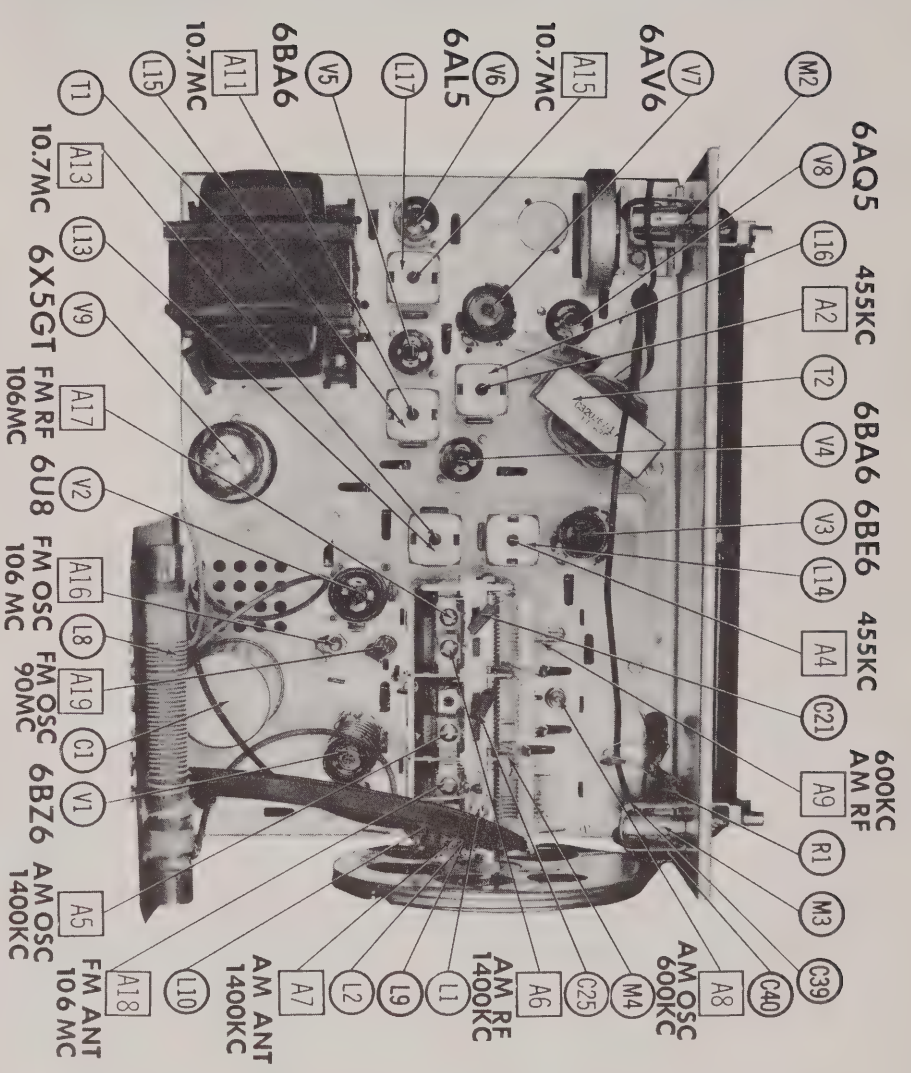
Note 1. Used in Models CR-715AA, CR-715AB.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	33	500	250187-47	1468-000033	DD-330	5W5Q33	ED-33	UC-5433	1FM-433	
C5	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C6	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C8	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C9	100	500	250187-53	1468-0001	DD-101	5W5T1	ED-100	MC-235	1FM-31	
C10	5		250088-138							N470
C11	2.5-12.5		250188-9							
C12	220	500	250159-55	1469-00022	TCZ-220	22R5T22	TCO-220		MS-322	5%
C13	220	500	250159-55	1469-00022	TCZ-220	22R5T22	TCO-220		MS-322	5%
C14	.0047	400	250211-5	BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	4TM-D47	
C15	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C16	2.2		250221-118	NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C17	100	500	250187-53	1468-0001	DD-101	5W5T1	ED-100	MC-235	1FM-31	
C18	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C19	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C20	220	500	250187-57	1468-00022	DD-221	5W5T22	ED-220	UC-5322	1FM-322	
C21	20	500	250187-5	1469-00002	TCZ-20	22R5Q2	TCO-20	ZT-542	MS-42	5%
C22	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C23	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C24	47	500	250187-49	1468-000047	DD-470	5W5Q47	ED-47	UC-5447	1FM-447	
C25	20	500	250187-5	1469-00002	TCZ-20	22R5Q2	TCO-20	ZT-542	MS-42	5%
C26	3300		250175-28	1464-0033		1R5D33	CY20C332J		MS-233	10%
C27	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C29	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C30	.1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C31	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C32	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C33	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C34	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C35	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C36	330		250207-49	SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	
C37	1500		250218-18	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C38	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C39	47		250218-17	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C40	33		250218-21	N750-SI 33	TCN-33	C10Q33U	TCN-33			N750
C41	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C42	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C43	220		250218-5	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C44	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	①
C45	.01	400	250211-7	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C46	.22	200	250202-15	P288N-22		CUB2P22		GEM-2022	2TM-P22	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C47	.015	200	250202-8	P288N-015	DD16-153	CUB6S15		GEM-4115	4TM-S15	
C48	.0022	600	250201-3	BPD-0022	D6-222	CUB6D 22	GP-2200	GEM-6222	6TM-D22	②
C49A	10000	1000	250219-3	DAC-27	DD16-153	HVE16S1		GEM-1011	BL-S10	
B	10000	1000		DAC-27	DD16-153	HVE16S1		GEM-1011	BL-S10	
C50	100	500	250187-69	1468-0001	DD-101	5W5T1	ED-100	UC-531	1FM-31	

① Chassis CR-715AA, CR-715AB use .033MFD in this application (Part #250202-10).
② Chassis CR-715AA, CR-715AB use 1000MMF in this application (Part #250218-8).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3.3Meg	½	220131-3				UDT-303	Volume, Tap ⓐ 300K & 1.5Meg
R2A	1Meg	½	220073-20	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	IRC PART No.	NOTES
R3	22K		230104-78	BTS-22K	
R4	15K		230104-76	BTS-15K	
R5	4700Ω		230104-70	BTS-4700	
R6	180Ω		230104-53	BTS-180	
R7	1Meg		230104-98	BTS-1Meg	
R8	100K		230104-86	BTS-100K	
R9	12K		230104-75	BTS-12K	
R10	1000Ω		230104-62	BTS-1000	
R11	2200Ω		230104-66	BTS-2200	
R12	2700Ω		230104-67	BTS-2700	
R13	100Ω		230104-50	BTS-100	
R14	1500Ω		230104-64	BTS-1500	
R15	22K		230104-78	BTS-22K	
R16	1000Ω		230104-62	BTS-1000	
R17	2.2Meg		230104-102	BTS-2.2Meg	
R18	1000Ω		230104-62	BTS-1000	
R19	68Ω		230104-48	BTS-68	
R20	47K		230104-82	BTS-47K	
R21	47K		230104-82	BTS-47K	
R22	220K		230104-90	BTS-220K	

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	IRC PART No.	NOTES
R23	2200Ω		230104-66	BTS-2200	
R24	47K		230104-82	BTS-47K	
R25	1000Ω		230104-62	BTS-1000	
R26	100Ω		230104-50	BTS-100	
R27	120Ω		230104-51	BTS-120	
R28	68K		230104-84	BTS-68K	
R29	1000Ω		230104-62	BTS-1000	
R30	15K		230104-76	BTS-15K	
R31	1800Ω		230104-65	BTS-1800	
R32	15K		230104-76	BTS-15K	
R33	100K		230104-86	BTS-100K	
R34	10Meg 5%		230104-110	BTS-10Meg 5%	
R35	220K		230104-90	BTS-220K	
R36	470Ω		230104-58	BTS-470	
R37	68K		230104-84	BTS-68K	
R38	3300Ω		230104-68	BTS-3300	
R39	470K		230104-94	BTS-470K	
R40	1250Ω	5	240071-16	PW7-1250	
R41	1250Ω	5	240071-16	PW7-1250	
R42	270Ω		230104-55	BTS-270	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ.46A	425VCT ⓐ.067A	6.3VAC ⓐ3.65A		300090-1				24R12U	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	10.8K Tapped	3-4Ω	320267-1						

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Trans.	360491-3				
L2	FM Ant. Coil	360629-1				
L3	RF Choke	360522-9	19-1002	BC-563	4606	2 Microhenries
L4	FM RF Coil	360629-1				
L5	FM Osc. Coil	360628-1				
L6	Fil. Choke	360522-9	19-1002	BC-563	4606	2 Microhenries
L7	Fil. Choke	360522-9	19-1002	BC-563	4606	2 Microhenries
L8	Loop Stick	460894-4		BC-419		Includes bracket assembly
L9	RF Choke	360522-9	19-1002	BC-563	4606	2 Microhenries
L10	RF Choke	360522-9	19-1002	BC-563	4606	2 Microhenries
L11	AM RF Coil	360348-2			A-5495-RF	
L12	AM Osc. Coil	360407-2	14-1033			
L13	1st. FM IF	360626-1	16-3487	FM-254	1463	
L14	1st. AM IF	360611-1	16-6758	BC-352	12-C1	
L15	2nd. FM IF	360626-1	16-3487	FM-254	1463	
L16	2nd. AM IF	360625-2	16-6770	BC-355	12-C6	
L17	Ratio Det.	360627-1	17-3498	FM-255	1465	
L18A	Line Choke	360653-1				
B	Line Choke					

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	MAGNAVOX PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M1	1N34A	530030-2	1N34A	1N34A	Audio Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M2	Dial Light	180161-17	#1847
M3	Dial Light	180161-17	#1847
M4	Tuning Cap.	260136-1	6 Gang, AM Sections: Ant. 25-575MMF, RF 25-575MMF, Osc. 25-195MMF
M5	Switch	160264-1	Function (Rotary-wafer type)

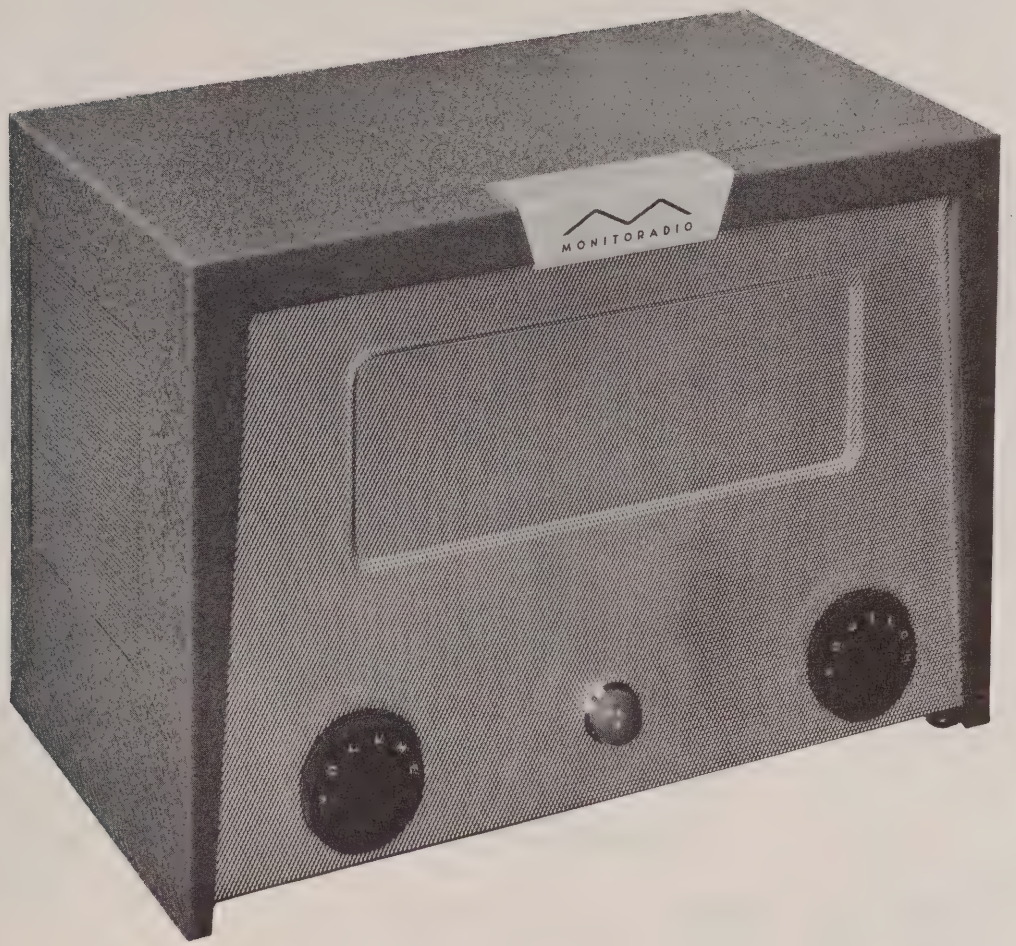
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	150419-1	Chassis CR715AA
Dial Glass	150443-1	Chassis CR715AB, BB
Dial Pointer	102448-2	

MONITORADIO MODEL MRC-33

MONITORADIO MODEL MRC-33



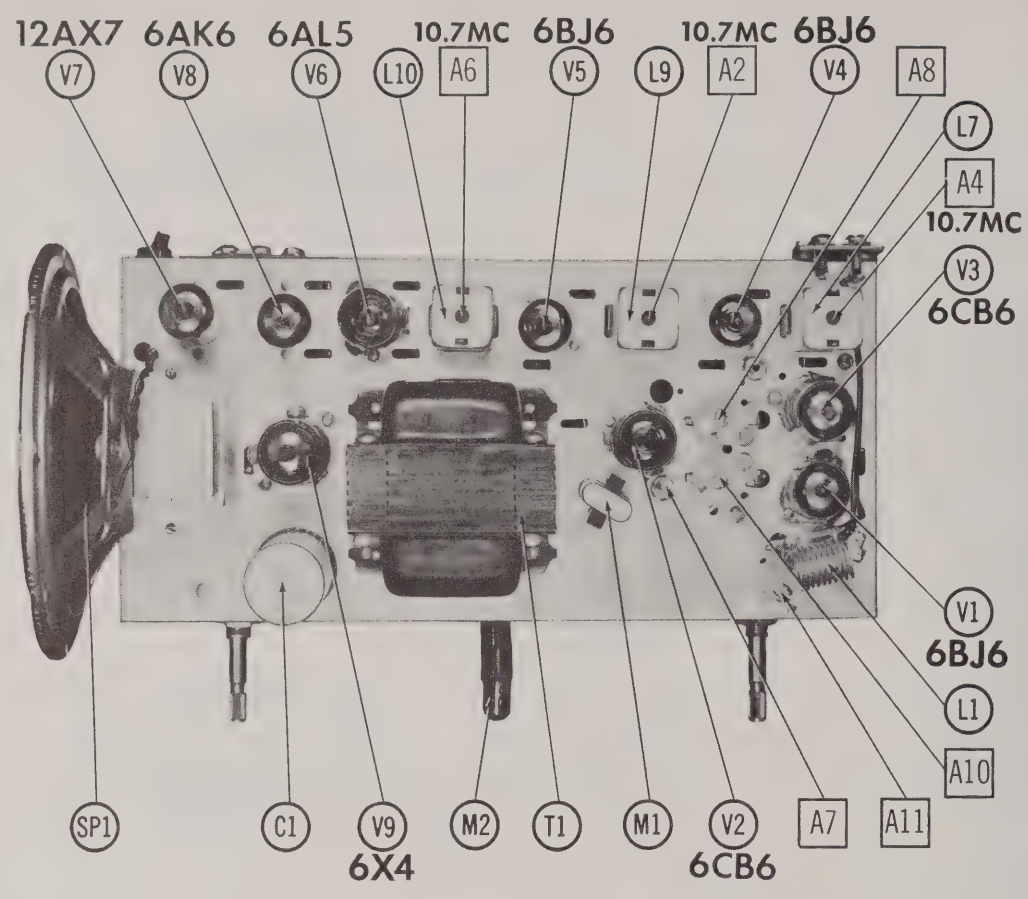
MONITORADIO MODEL MRC-33

TRADE NAME	Monitoradio Model MRC-33
MANUFACTURER	Monitoradio Div., L. D. E. A., Inc., 7900 Pendleton Pike, Indianapolis 26, Ind.
TYPE SET	AC Operated Single Channel FM Receiver
TUBES (Nine)	Types 6BJ6 RF Amp., 6CB6 Crystal Osc., 6CB6 Mixer, 6BJ6 1st IF Amp., 6BJ6 2nd. IF Amp., 6AL5 Ratio Det., 12AX7 Squelch-AF Amp., 6AK6 Output, 6X4 Rect.
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .35 Amp. @ 117 Volts AC (36 Watts)
FREQ. RANGE - FREQ. MOD.	30MC-50MC

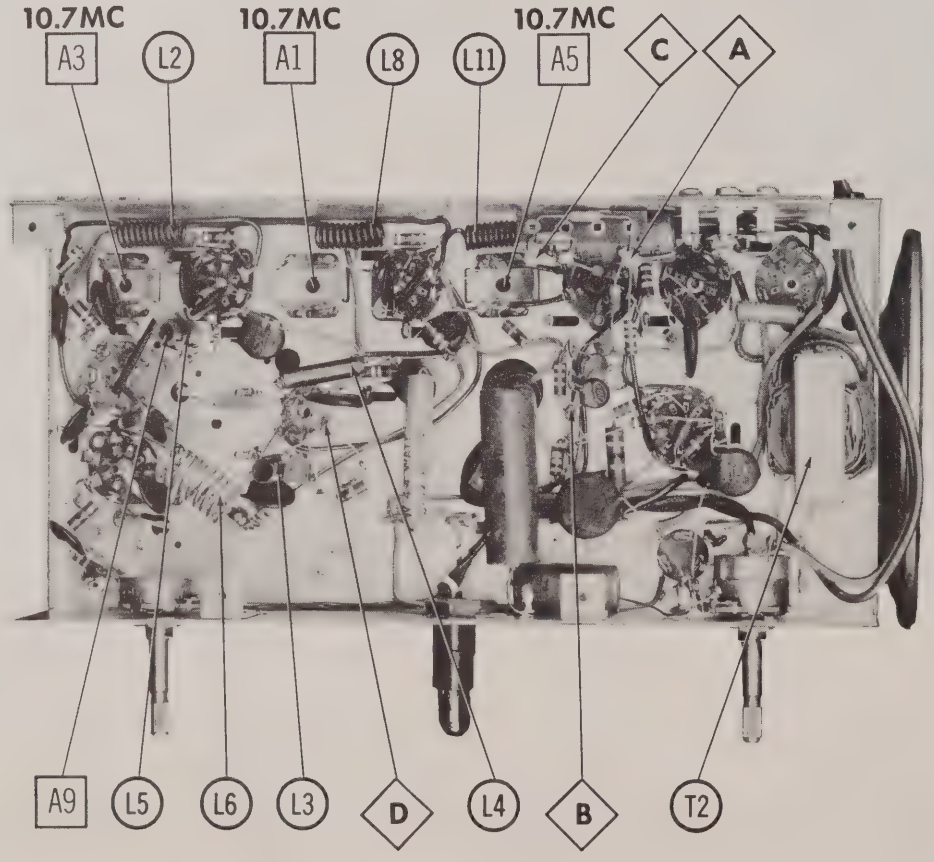
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BJ6	
V2	Crystal Osc.	6CB6	
V3	Mixer	6CB6	
V4	1st. IF Amplifier	6BJ6	
V5	2nd. IF Amplifier	6BJ6	
V6	Ratio Detector	6AL5	
V7	Squelch-AF Amp.	12AX7	
V8	Output	6AK6	
V9	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

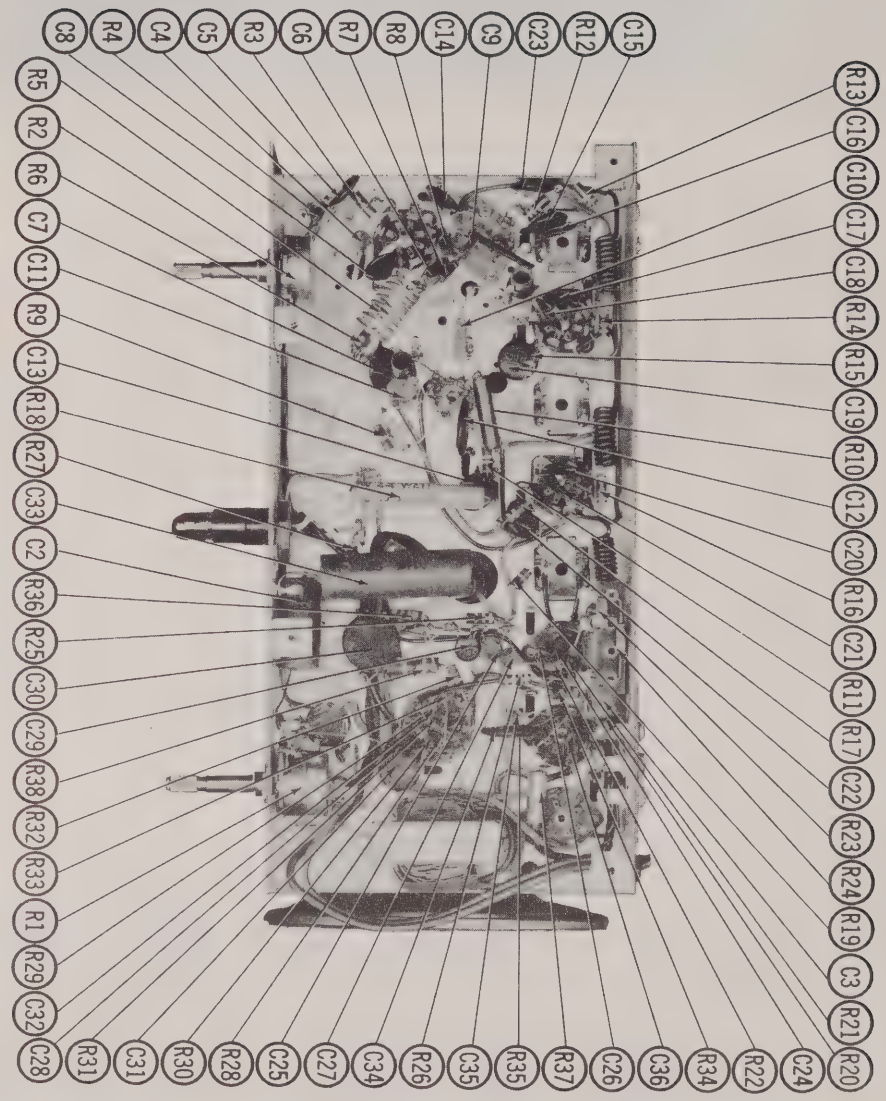
ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Monitoradio PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	250	300-082-8	AFH3-20	XC0732	FP321	TMT-20	T-090	TVL-3540
B	▲20	250							
C	20	25							
C2	2	50	300-109-1	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C3	2	50	300-109-1	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Monitoradio PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	56				DD-560	L10Q56	ED-56	UC-5456	5GA-Q56	
C5	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C6	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C7	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C8	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C9	56				DD-560	L10Q56	ED-56	UC-5456	5GA-Q56	
C10	100	500		1469-0001	TCZ-100	22R5T1	TC0-100	ZT-531	MS-31	5%
C11	27	500		1469-000027	TCZ-27	22R5Q27	TC0-27		MS-427	5%
C12	.10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C13	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C14	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C15	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C16	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C17	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C18	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C19	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C20	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C21	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C22	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C23	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C24	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C25	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C26	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C27	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C28	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C29	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C30	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C31	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C32	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C33	.25	200		P288N-25		CUB2P25		GEM-2025	2TM-P25	
C34	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	270			BPD-00027	DD-271	L10T27	ED-270	UC-5327	5GA-T27	
C36	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C37	5-50									N650
C38	5-50									N650
C39	5-50									N650

CHASSIS—BOTTOM VIEW



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn volume and squelch controls fully clockwise.
Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis.	10.7MC		DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	"	"	"		DC probe to point Ⓑ. Common to point Ⓒ.	A6	Adjust for zero reading. A position and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
3.	.001MFD	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis.	10.7MC (±200KC Swp)		Vert. Amp. to point Ⓐ. Low side to chassis.	A1, A2, A3, A4, A5	Disconnect stabilizing capacitor C3. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
4.	"	"	"		Vert. Amp. to point Ⓑ. Low side to chassis.	A6	Reconnect capacitor C3. Adjust A6 for maximum straightness of diagonal line with 10.7MC marker appearing midway between peaks, similar to Fig. 2.

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.		Signal generator not used.			DC probe to point Ⓓ. Common to chassis.	A7	Adjust for maximum deflection.
6.	22Ω Carbon Resistor	High side of sig. gen. to antenna terminal #1. Low side to terminal #2.	Freq. of desired signal		DC probe to point Ⓐ. Common to chassis.	A8, A9, A10, A11	Adjust for maximum deflection. Correct adjustment of A8 (and A9 if necessary) is when they are tuned to twice the crystal frequency. Incorrect adjustment will result in self-oscillation of the mixer stage.

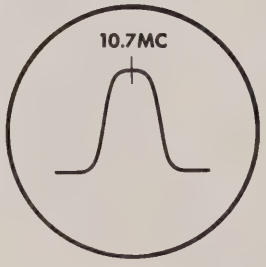


FIG. 1

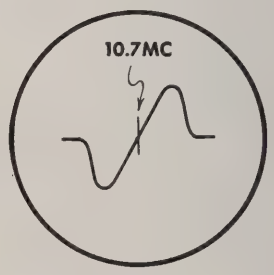
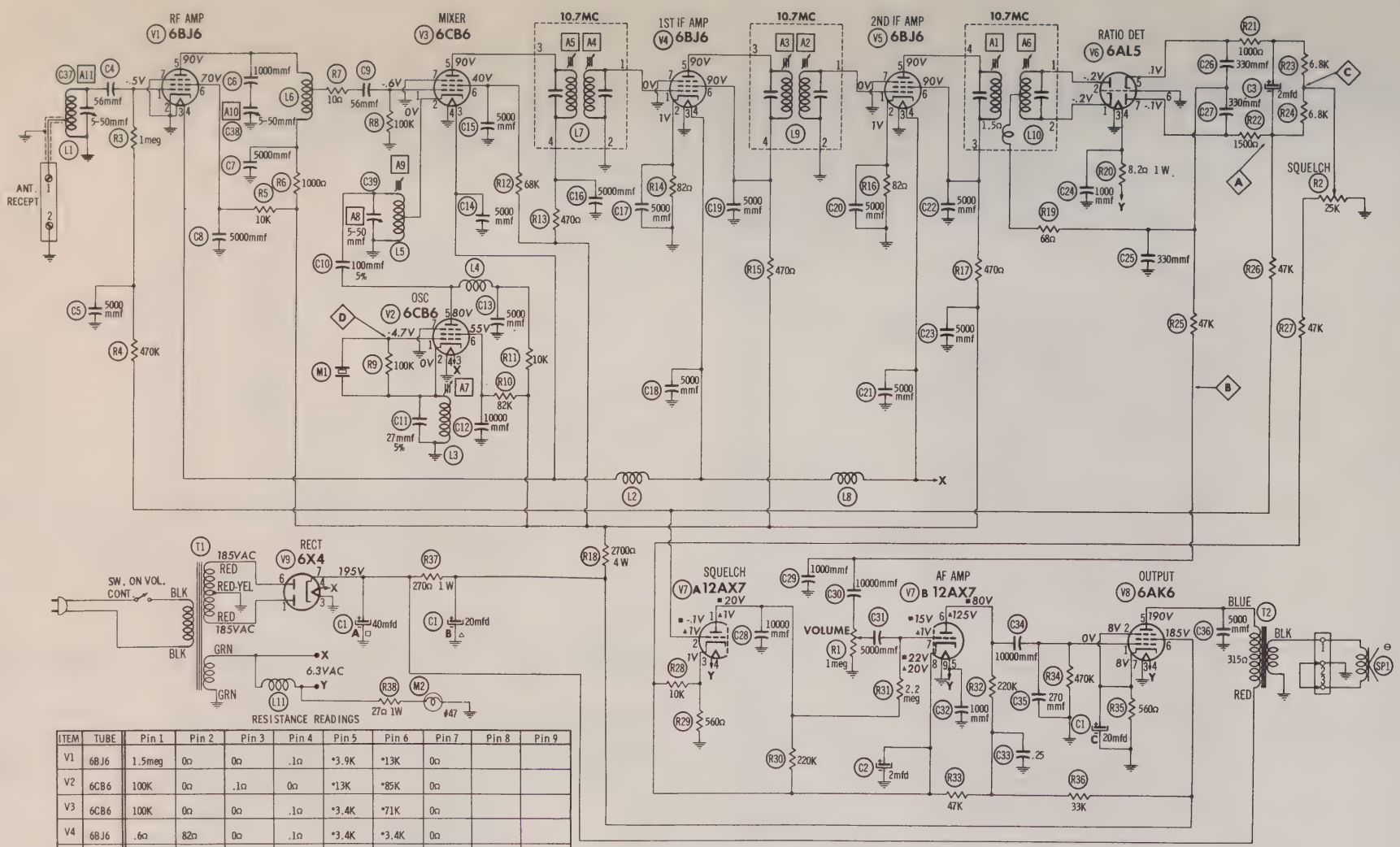


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	1.5meg	0Ω	0Ω	.1Ω	*3.9K	*13K	0Ω		
V2	6CB6	100K	0Ω	.1Ω	0Ω	*13K	*85K	0Ω		
V3	6CB6	100K	0Ω	0Ω	.1Ω	*3.4K	*71K	0Ω		
V4	6BJ6	.6Ω	82Ω	0Ω	.1Ω	*3.4K	*3.4K	0Ω		
V5	6BJ6	.6Ω	82Ω	0Ω	.1Ω	*3.4K	*3.4K	0Ω		
V6	6AL5	INF.	INF.	0Ω	3Ω	■7.8K ▲26K	0Ω	■8.2K ▲26K		
V7	12AX7	*330K	■ 54K ▲ 70K	560Ω	.1Ω	.1Ω	*220K	2.4meg	10K	0Ω
V8	6AK6	470K	560Ω	0Ω	.1Ω	*330Ω	*270Ω	560Ω		
V9	6X4	90Ω	INF.	0Ω	.1Ω	INF.	85Ω	90K		

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

* MEASURED FROM PIN 7 OF V9.
■ SQUELCH CONTROL IN FULLY CLOCKWISE POSITION.
▲ SQUELCH CONTROL IN FULLY COUNTER-CLOCKWISE POSITION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1957

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Monitoradio PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	100-093-8	B-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			Not req.	KSS-3	Not req.	Not req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	25K	½	100-093-9	B-27	A47-25K-V	Q14-120	U28	Squelch
B	Shaft			Not req.	KSS-3	Not req.	Not req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Monitoradio PART No.	IRC PART No.	
R3	1Meg			BTS-1Meg	
R4	470K			BTS-470K	
R5	10K			BTS-10K	
R6	1000Ω			BTS-1000	
R7	10Ω			BTS-10	
R8	100K			BTS-100K	
R9	100K			BTS-100K	
R10	82K			BTS-82K	
R11	10K			BTS-10K	
R12	68K			BTS-68K	
R13	470Ω			BTS-470	
R14	82Ω			BTS-82	
R15	470Ω			BTS-470	
R16	82Ω			BTS-82	
R17	470Ω			BTS-470	
R18	2700Ω	4			
R19	68Ω			BTS-68	
R20	8.2Ω 5%	1			

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Monitoradio PART No.	IRC PART No.	
R21	1000Ω			BTS-1000	
R22	1500Ω			BTS-1500	
R23	6800Ω			BTS-6800	
R24	6800Ω			BTS-6800	
R25	47K			BTS-47K	
R26	47K			BTS-47K	
R27	47K			BTS-47K	
R28	10K			BTS-10K	
R29	560Ω			BTS-560	
R30	220K			BTS-220K	
R31	2.2Meg			BTS-2.2Meg	
R32	220K			BTS-220K	
R33	47K			BTS-47K	
R34	470K			BTS-470K	
R35	560Ω			BTS-560	
R36	33K			BTS-33K	
R37	270Ω			BTA-270	
R38	27Ω	1		BTA-27	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Monitoradio PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .35A	375VCT @ .052A	6.3VAC @ 2.5A		500-160-3				22R28①	

①Use Universal Mtg. Brackets

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Monitoradio PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8500Ω	3-4Ω	300-240-1	Z1116	A-2927①	A-8114	24S52	S-7X	① Drill new mounting hole

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Monitoradio PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	750B21 300-071-3 ①	5A1	① Alternate Part#

COILS (RF-IF)

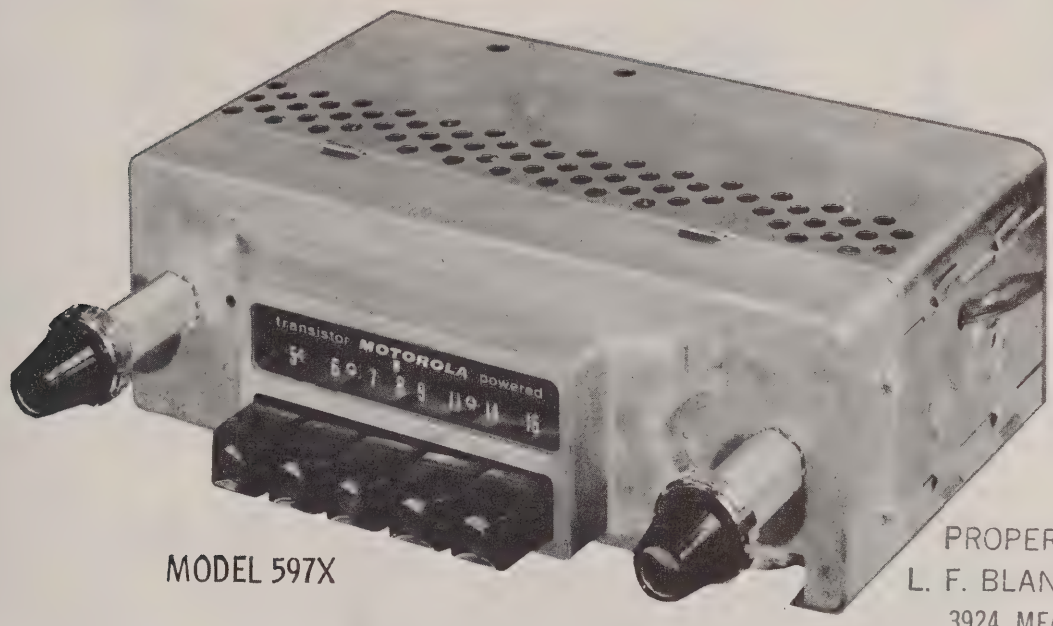
ITEM No.	USE	REPLACEMENT DATA				NOTES
		Monitoradio PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	300-529-1				
L2	Fil. Choke	100-710-3	19-1000	BC-561	4602	1.1 Microhenry
L3	Crystal Osc. Cathode	300-307-1				
L4	RF Choke	300-303-1	19-1005	BC-566	4612	11.3 Microhenries
L5	Osc. Coil	300-530				
L6	RF Coil	300-529-1				
L7	Input IF	300-077-2	16-3487	FM-254	1463	
L8	Fil. Choke	100-710-2	19-1000	BC-561	4602	1.1 Microhenry
L9	Output IF	300-077-2	16-3487	FM-254	1463	
L10	Ratio Det.	500-314	17-3498	FM-255	6205	
L11	Fil. Choke	100-710-1	19-1000	BC-561	4602	1.1 Microhenry

MISCELLANEOUS

ITEM No.	PART NAME	Monitoradio PART No.	NOTES
M1	Crystal	300-305	(On special order only - Specify frequency and quantity)
M2	Dial Light		#47
	Knob	300-531-2	ON-OFF-Volume
	Knob	300-531-3	Squelch

MOTOROLA MODELS BKA6X, BKA7X, CTA6X, CTA7X, PCA7X, 597X

MOTOROLA MODELS BKA6X, BKA7X, CTA6X, CTA7X, PCA7X, 597X



MODEL 597X

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MOTOROLA MODELS BKA6X, BKA7X, CTA6X, CTA7X, PCA7X, 597X

TRADE NAME	Motorola Models BKA6X (1956 Buick), BKA7X (1957 Buick), CTA6X (1955 & 1956 Chev.), CTA7X (1957 Chev.), PCA7X (1957 Pontiac), 597X (Universal Type)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Five)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12BL6 IF Amplifier, 12F8 Det.-AVC-AF Amp., 12K5 Driver
POWER SUPPLY	12 Volt Storage Battery — RATING 1.8 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1MFD	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262.5KC (400%Mod.)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2	Fig. 1	Thru dummy to Antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	The following steps are not necessary unless tuner has been tampered with or replacement of associated components has been made. Remove escutcheon and dial back plate. Back tuner cores (A8, A9, A10) approximately 7/16" out of coils but not out of coil forms.						
3	Fig. 1	Thru dummy to Antenna receptacle.	1610KC	High frequency end stop	Across voice coil	A5, A6, A7	Adjust for maximum output.
4	"	"	1200KC	Adjust tuner carriage 9/32" from high frequency end stop.	"	A8, A9, A10	"
5	"	"	1610KC	High frequency end stop	"	A5, A6, A7	Adjust for maximum output. Repeat steps 4 & 5 until no further improvement is noted. Make step 5 the last adjustment.
6	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC, and adjust A7 for maximum volume.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat on remaining pushbuttons.

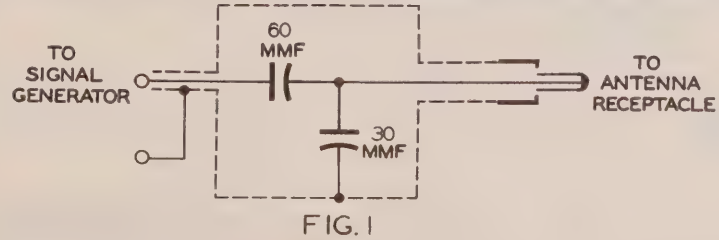


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6	
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	

ITEM No.	USE	TYPE	NOTES
V4	Det. -AVC-AF Amp.	12F8	
V5	Driver	12K5	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			CBS PART No.	SYLVANIA PART No.	
X1	2N178	Output			Note 1

Note 1. Some versions may use type 2N176 (Part # 48C124246)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲500	16	23B540699	AFH2-02-10	B0045	WP200. 5			R2299 *
B	■100	16							

* Non catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

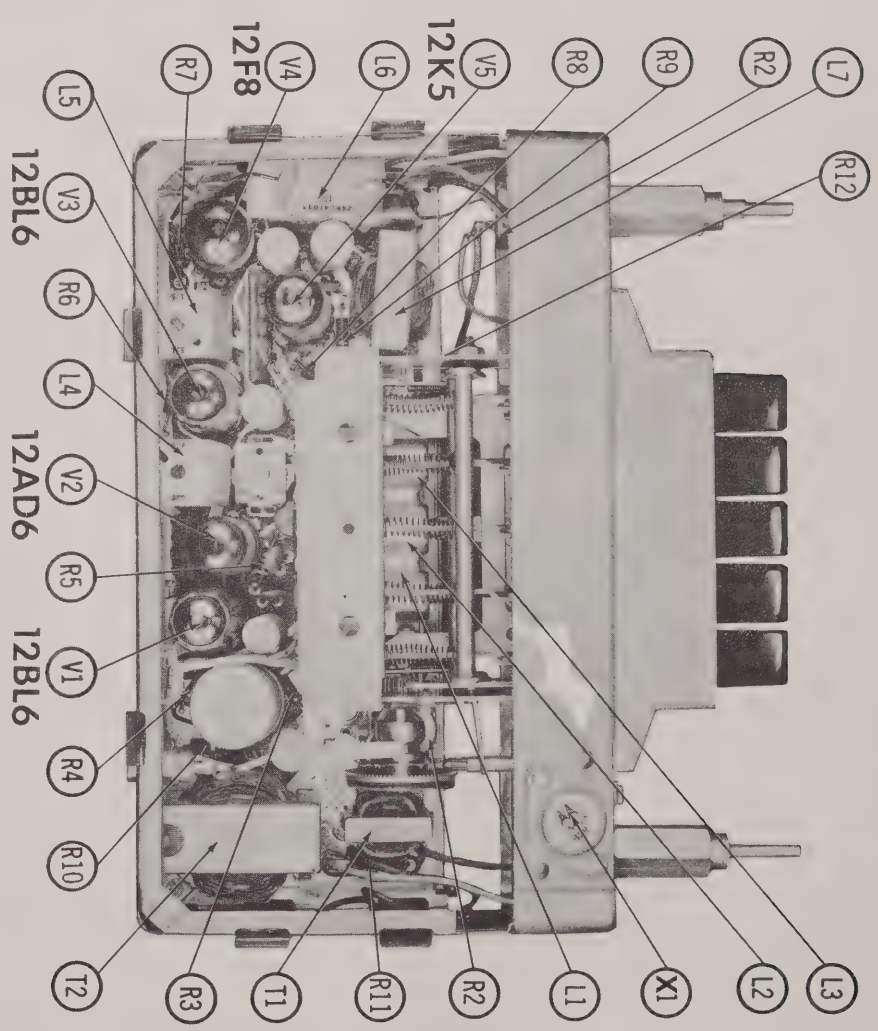
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	35-200		20A540804							
C3	. 003	200	8K125411	BPD-3000	D6-302	BC6D33J	GP-3000		2SE-D33	
C4	18-110		20A540714							
C5	27		21K533469	SI 27	D6-270	L10Q27	ED-27	UC-5327	5GA-Q27	
C6	. 05	200	8B120842	BPD-05		BC2S47J		ACE615	2SE-S47	
C7	100		21R410036	N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C8	310-390		20K541030							
C9	47		21K537509	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C10	. 05	200	8B120842	BPD-05		BC2S47J		ACE615	2SE-S47	
C11	. 05	200	8B120842	BPD-05		BC2S47J		ACE615	2SE-S47	
C12	. 1	100	8K124891	P288N-1		BC2P1J		ACE601	2SE-P10	
C13	470		21K125410	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C14	. 5	100	8K121666	P288N-5		CUB2P5		GEM-205	2TM-P5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	18B540579 ①	F1-41	RTV-625C		UE1473S	Tone
B	1Meg	½		R2-56				Volume, Tap② 500K
C	Switch			KB-1				
R1A	500K		18K541128 ②					Tone
B	1Meg							Volume, Tap② 500K
C	Switch							
R1A	500K		18K541016 ③					Tone
B	1Meg							Volume, Tap② 500K
C	Switch							
R1A	500K		18K541286 ④					Tone
B	1Meg							Volume, Tap② 500K
C	Switch							
R2	210Ω	1	18A540698					Emitter Bias (Wire Wound)

① Used in Model 597X
② Used in Model CTA7X
③ Used in Model CTA6X, BKA6X, PCA7X
④ Used in Model BKA7X

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R3	22Meg		6R488158	BTS-22Meg	
R4	2700Ω		6R5577	BTS-2700	
R5	47K		6R6048	BTS-47K	
R6	180Ω			BTS-180	Note 1
R7	22K		6R6397	BTS-22K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R8	56Ω		6R5614	BTS-56	
R9	18Ω		6R2031	BTS-18	
R10	5.6Ω 5%	1	17K739323		
R11			6K540634		Note 2
R12	82Ω		6R2035	BTS-82	

Note 1. Some versions may use 270Ω (Part #6R6432)
Note 2. Temp. compensating resistor, 10Ω@ 25°C

TRANSFORMER (DRIVER)

ITEM No.	Turns Ratio		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	6.5:	1	25B540523						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC1	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	31.5Ω	3-4Ω	25C540659						
	Turns Ratio								
	PRI.	SEC.2							
	1:	1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6"X9"	PM	3-4Ω	50C541101 ①	69A2	① Used in Models 597X, BKA6X, BKA7X, CTA6X, CTA7X
	6"X9"	PM	3-4Ω	50K541105 ①②	69A2	② Alternate Part No.
	5"X7"	PM	3-4Ω	50C541964 ①	57A1	③ Used in Model PCA7X; Two used
	6"X9"	PM	6-8Ω	50C541919 ③		

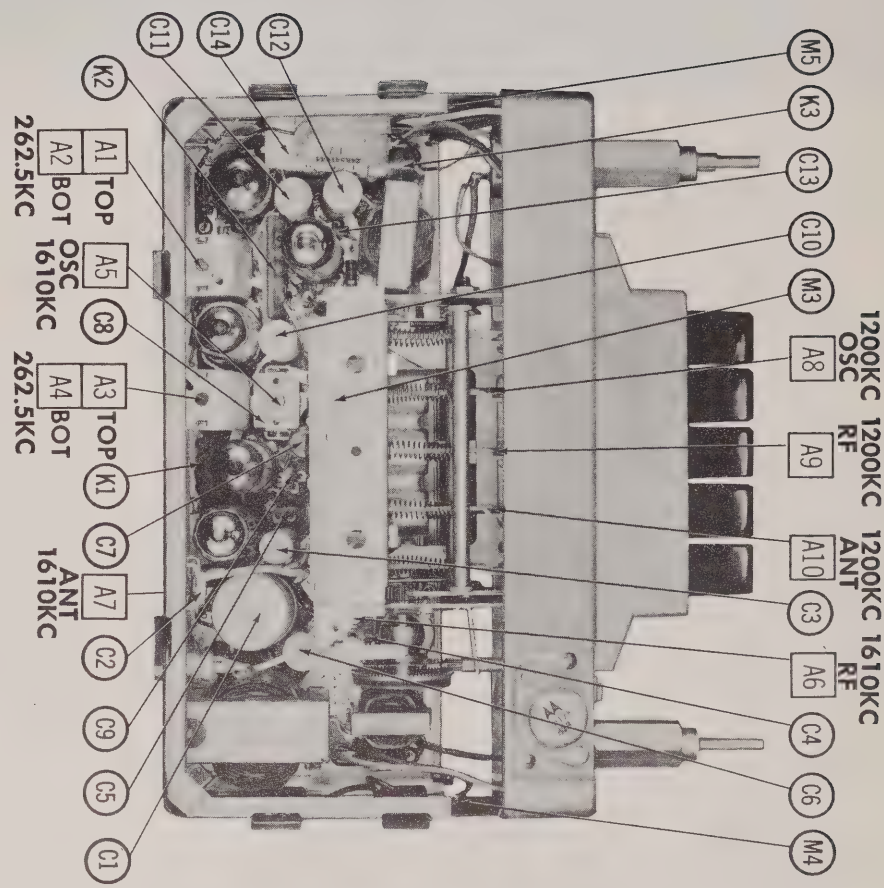
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Antenna Coil	24C535458				
L2	RF Coil	24C535458				
L3	Osc. Coil	24C535456				
L4	Input IF	24C540911	16-6756	BC-344	13-PH1	
L5	Output IF	24K540912		BC-346	13-PH6	
L6	Fil. Choke	24K541044				12.3 Microhenries

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L7	.5A	.7Ω	12 Milli-henries	25B540522					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Converter Circuit	220MMF, 10Meg, 8200Ω	51B540717	Erie 704-01
K2	AVC Network	10000MMF, 27MMF, 3.3Meg, 1Meg, 3.3Meg, 3.9Meg, 3.3Meg	51B540716	Erie 707
K3	Audio Output	4000MMF, 10000MMF, 10000MMF 270K, 10K, 120K, 330K, 2.2Meg	51B540715	Erie 709-03

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	9A	65R16248	9K540778	307009. (SFE9A)	155009	SFE9	HRH

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Dial Light	65R533821	#1891
M3	Tuner	77D540831	Complete (AT-210) Models 597X, BKA6X, BKA7X, CTA6X, PCA7X
	Tuner	77K541218	Complete (AT-214) Model CTA7X
M4	Spark Plate	64K532087	
M5	Spark Plate	64K530177	

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

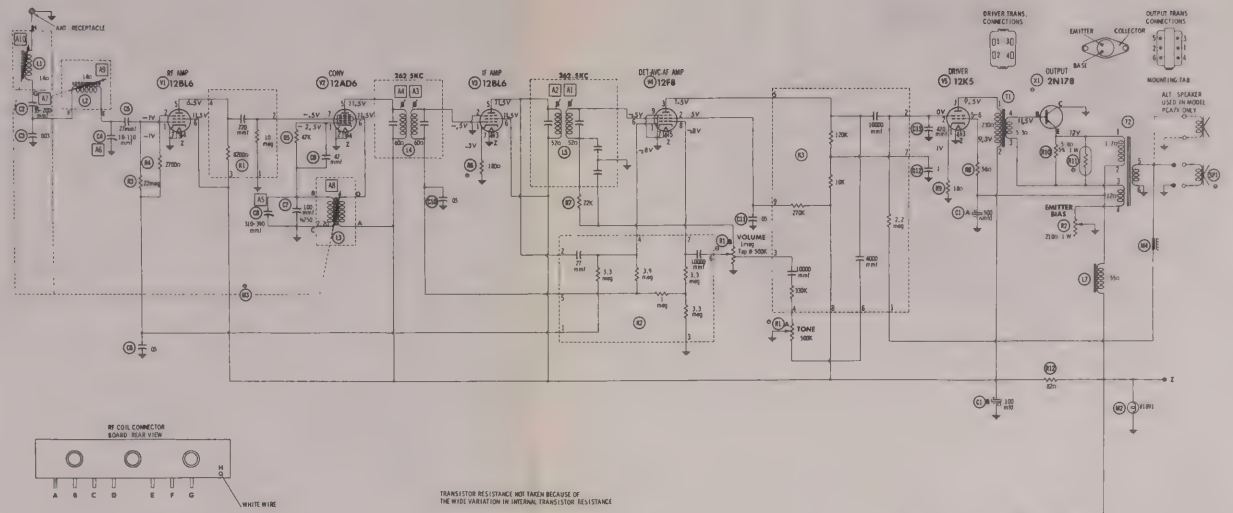
NAME	PART NO.	DESCRIPTION
Printed Panel	84B540914	(Include Letter(s) Following Number)
Knob	36B522208	ON-OFF-Vol., Tuning; Model 597X
Knob	1V538924	ON-OFF-Vol., Tuning; Model BKA6X, BKA7X, PCA7X
Knob	36B534305	ON-OFF-Vol., Tuning; Model CTA6X
Knob	36B541129	ON-OFF-Vol., Tuning; Model CTA7X
Knob	36B522020	Tone, Model 597X
Knob	36B513220	Tone, Model BKA6X, PCA7X
Knob	36K473550	Tone, Model BKA7X
Knob	36K534307	Tone, Model CTA6X
Knob	36K541139	Tone, Model CTA7X
Knob	36K522022	Dummy, Model 597X
Knob	36K513223	Dummy, Model BKA6X, PCA7X
Knob	36K512160	Dummy, Model BKA7X
Knob	36B534306	Dummy, Model CTA6X
Knob	36K541140	Dummy, Model CTA7X
Dial Scale	34B541013	Model 597X
Dial Scale	34K541012	Model BKA6X, PCA7X
Dial Scale	34B541633	Model BKA7X
Dial Scale	34B541011	Model CTA6X
Dial Scale	34B541270	Model CTA7X
Pointer	1V534339	Model 597X, CTA6X
Pointer	1V538739	Model BKA6X, PCA7X
Pointer	1V541387	Model BKA7X
Pointer	1V541252	Model CTA7X

EMITTER CURRENT ADJUSTMENT

Connect a milliammeter in series with the emitter terminal of the transistor (X1). The internal resistance of the meter should not exceed .5Ω. Connect a power source of 14 volts DC to the receiver and allow a warm-up period of 15 minutes. Adjust R2 for a meter reading of 500MA.

(Alternate Method)

Remove the transistor (X1) from its socket. Connect an ammeter (0-3 Amp.) in series with the receiver "A" lead. The internal resistance of the meter should not exceed .02Ω. Connect a power source of 14 volts DC to the receiver and allow a warm-up period of 15 minutes. Accurately measure the current, turn the receiver off and reconnect the transistor. Be certain that the mounting screws are tightened securely. Turn on the receiver and adjust R2 for an increase of 500MA in current drain.



TRANSISTOR RESISTANCE NOT TAKEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	33 5Meg	11 5Meg	0Ω	1.5Ω	†8200Ω	†82Ω	0Ω		
V2	12AD6	47K	0Ω	0Ω	1.5Ω	†1400Ω	†82Ω	.18Meg		
V3	12BL6	4 3Meg	0Ω	1.5Ω	0Ω	†1350Ω	†82Ω	180Ω		
V4	12F8	8 2Meg	†270K	†130K	0Ω	1.5Ω	1Meg	0Ω	6 6Meg	0Ω
V5	12K5	18Ω	2 2Meg	1.5Ω	0Ω	†110Ω	†110Ω	†31.0Ω		

† MEASURED FROM JUNCTION OF R 12 AND L7

◉ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections shown as bottom views
3. Measured values are from socket pin to common negative
4. Battery voltage maintained at 12.6 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

MOTOROLA MODELS Y17T27CH, Y17T28-1, -2, -3, 17T27CH, 17T28-1, -2, -3 (Ch. TS-422, Y)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . unless it has been purchased as part of a complete volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 17T28-1 (Ch. TS-422)

TRADE NAME	Motorola	MODELS	CHASSIS
		17T27CH, 17T28-1, 17T28-2, 17T28-3	TS-422
		Y17T27CH, Y17T28-1, Y17T28-2, Y17T28-3	TS-422Y
MANUFACTURER	Motorola, Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Television Receiver		
TUBES	Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 145 Watts, 1.2 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

INDEX

Alignment Instructions 6, 7
Drive Cord Stringing (UHF) 10
Disassembly Instructions 1
Horizontal Sweep Circuit Adjustments 15
Parts List and Descriptions 12, 13
Photographs
- Cabinet-Rear View 15
- Capacitor & Alignment Identification 4, 9
- Chassis-Top View 11

Photographs (Con't)
- RF Tuner 16
- Resistor & Inductor Identification 5, 8

Resistance Measurements 10
Servicing in the Field 1
Schematic (Alternate Tuners) 14, 15
Schematic (TV) 2
Terminal Location Chart 10
Tube Failure Check Chart 3
Tube Placement Chart 3

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

MOTOROLA MODELS Y17T27CH, Y17T28-1, -2, -3, 17T27CH, 17T28-1, -2, -3 (Ch. TS-422, Y)

PHOTOFACT* Folder
*TRADE MARK

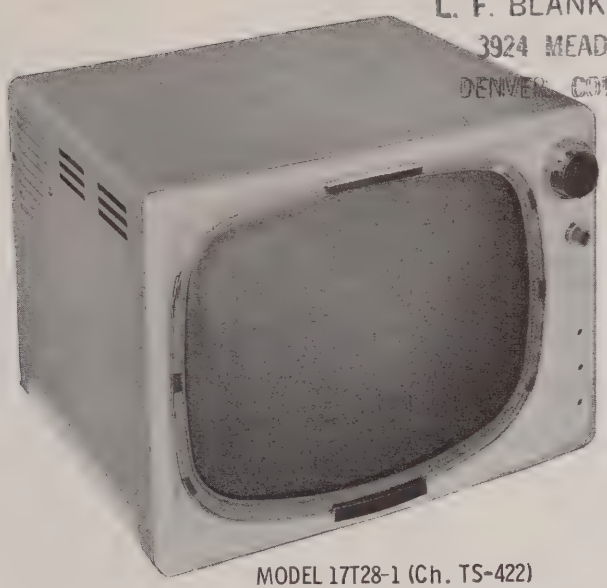
MOTOROLA MODELS Y17T27CH, Y17T28-1, -2, -3, 17T27CH, 17T28-1, -2, -3 (Ch. TS-422, Y)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from the front.
2. Remove the rear cover by prying the clips loose.
3. Remove yoke plug connections, picture tube socket, speaker lead, HV lead and cabinet isolation clip at the left rear of the cabinet.
4. Remove 4 chassis bolts from the bottom.
5. Remove the chassis.
6. Remove 2 metal screws and the control panel.
7. Remove 3 metal screws and the tuner assembly.
8. Remove 2 speaker nuts and the speaker with the filter choke mounted on it.



MODEL 17T28-1 (Ch. TS-422)

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODELS	CHASSIS
17T27CH, 17T28-1, 17T28-2, 17T28-3	TS-422
Y17T27CH, Y17T28-1, Y17T28-2, Y17T28-3	TS-422Y

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 13 adjustment is located at 10 o'clock, proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the metal screw from the bottom of the front edge of the cabinet holding the escutcheon. Remove escutcheon. Remove safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 1. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A10) located on top of chassis.

FUSES

A 7.5Ω fusible resistor (R34) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

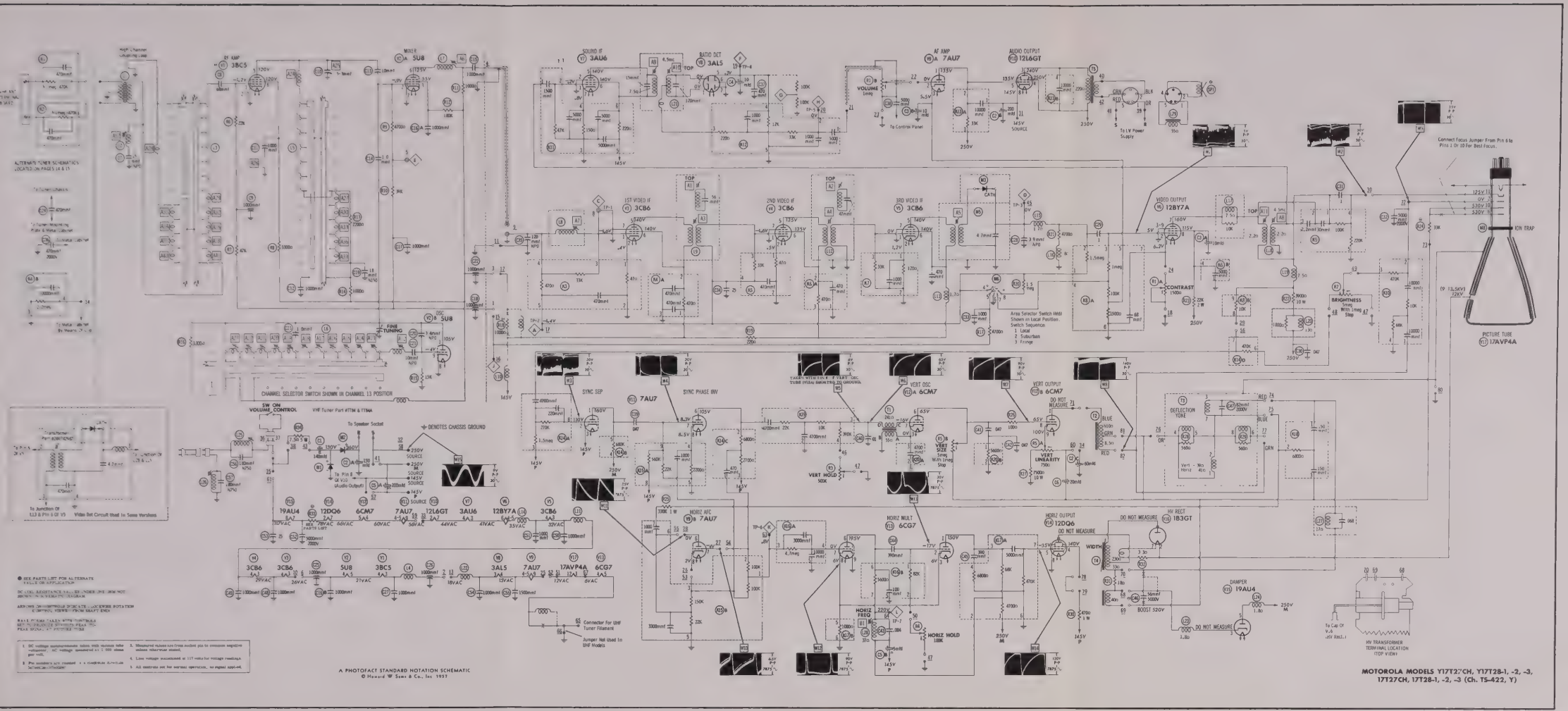
MOTOROLA MODELS Y17T27CH, Y17T28-1, -2, -3, 17T27CH, 17T28-1, -2, -3 (Ch. TS-422, Y)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

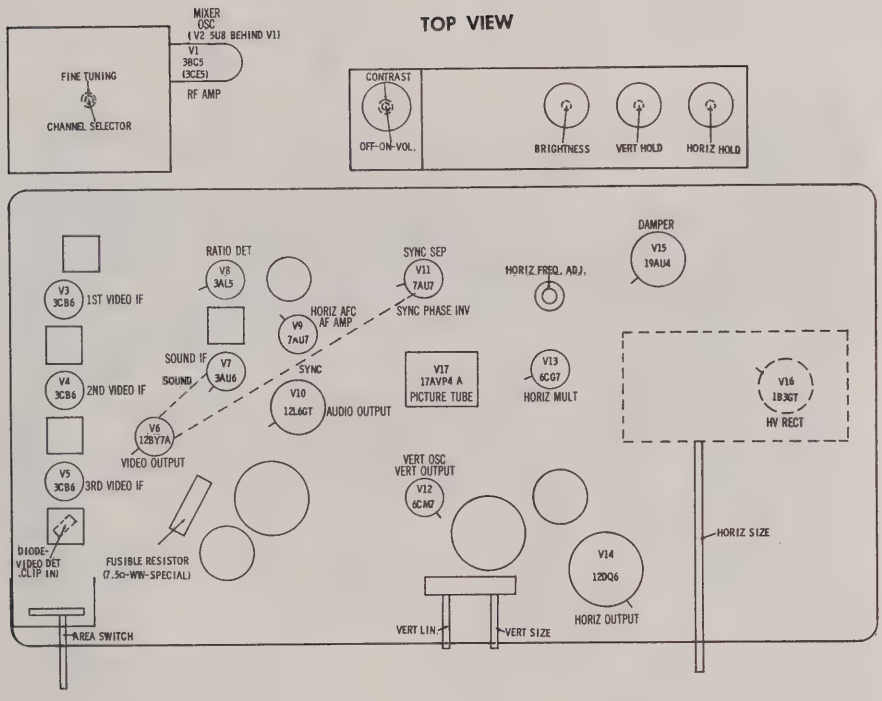
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

G922

DATE 8-57 SET 368 FOLDER 9


MOTOROLA MODELS Y17T27CH, Y17T28-1, -2, -3,
17T27CH, 17T28-1, -2, -3 (Ch. TS-422, Y)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W Sams & Co., Inc 1957
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
SW ON VOLUME CONTROL
DENOTES CHASSIS GROUND
PICTURE TUBE
17AVP4A
ION TRAP
HV TRANSFORMER TERMINAL LOCATION (TOP VIEW)
DAMPER
19AU4
HV RECT
1B3GT
DO NOT MEASURE
BOOST 520V
CONTRAST
BRIGHTNESS
HORIZ HOLD
VERT HOLD
VERT LINEARITY
VERT SIZE
FINE TUNING
VOLUME
Connect Focus Jumper From Pin 6 to Pins 1 Or 10 For Best Focus.

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

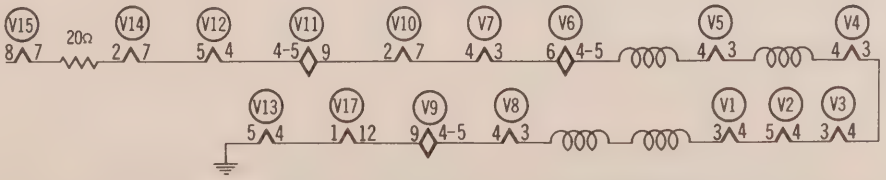
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R34), Rectifiers (M1, M2)**

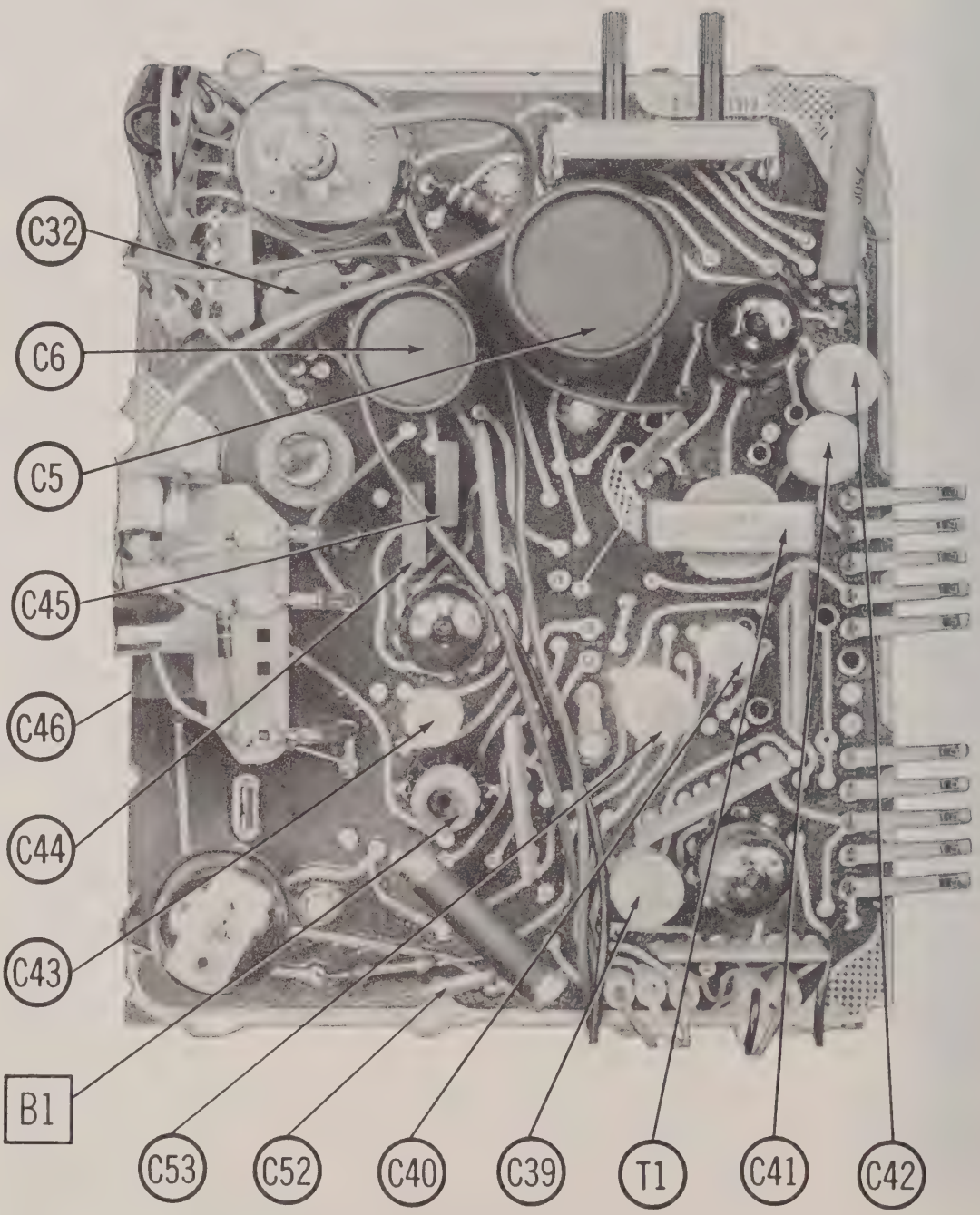
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M3), V6, V10**
No pic, no sound, has snow - **V1, V2, V3, V10**
No pic, has sound, has raster - **V6, V17**
Has pic, no sound - **V7, V8, V9, V10**

SYNC FAILURE
No vert. sync - **V11, V10**
No horiz. sync - **V11, V9, V10**
No vert. or horiz. sync - **V11, V10**

SWEEP FAILURE
No raster, has sound - **V9, V13, V14, V15, V16, V17**
No vertical deflection - **V12**
Poor vert. linearity or foldover - **V12**
Poor horiz. linearity or foldover - **V13, V14, V15**
Narrow picture - **V13, V14, V15, M1, M2**
Vert. off freq. - **V12**
Horiz. off freq. - **V13**

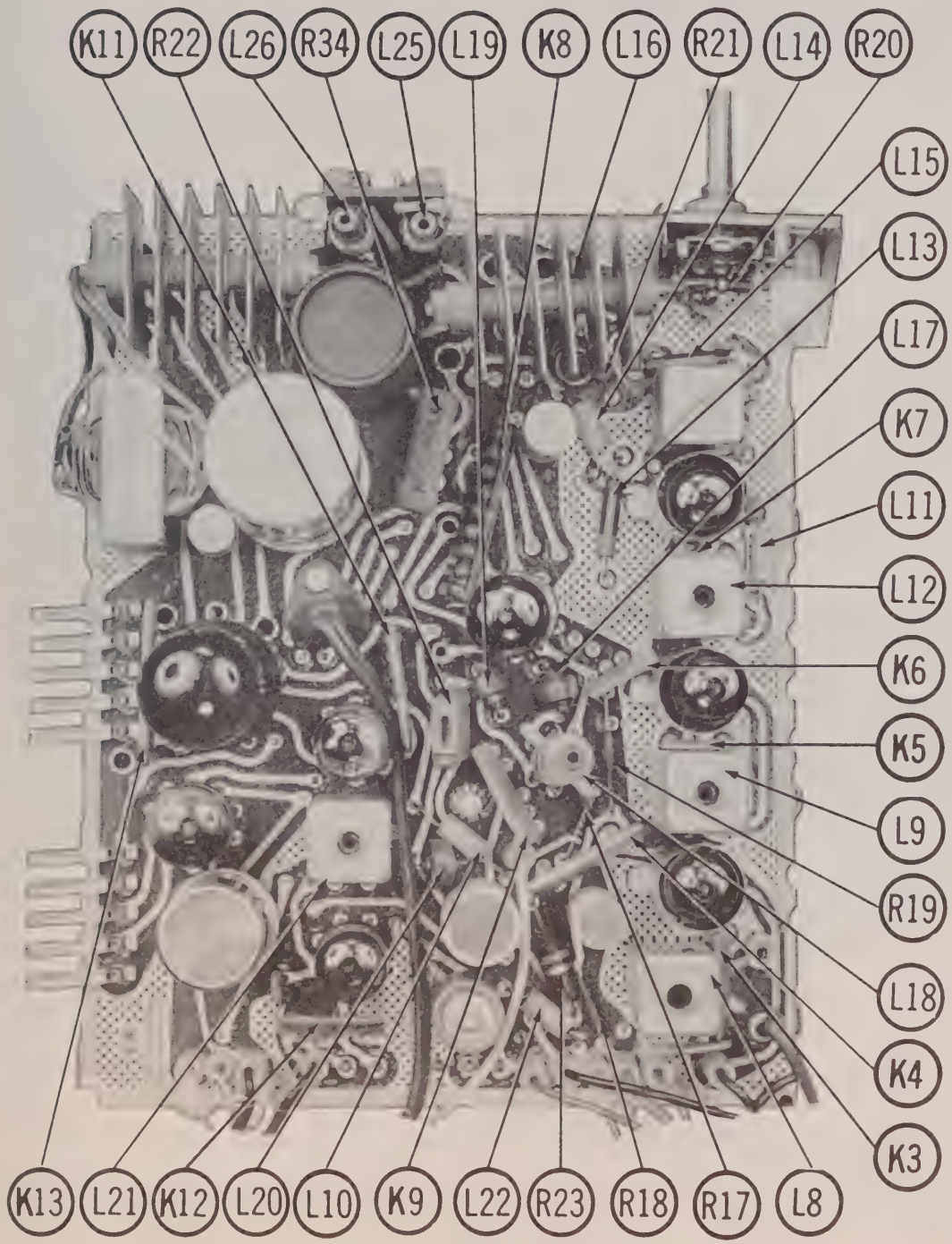
This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



RESISTOR AND INDUCTOR IDENTIFICATION

SET 368 FOLDER 9

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS - READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT
Remove the deflection yoke plug and connect an 1800Ω, 50 watt resistor from pin ⑩ to chassis

VIDEO I.F ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point ⑦ Positive to chassis
Disable the local oscillator by shorting pin 9 grid of 5U8 (V3) to chassis with a short lead
Remove all signals from the receiver and turn the contrast control fully counter clockwise
Turn area sensitor switch to the "Local" position.
Connect the synchronized sweep voltage from the **sweep generator** to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Maintain from 2 to 5 volts peak to peak at the scope input.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1	005MFD	High side to point ⑭ Low side to chassis	44 0MC (00MC Swp)	41 25MC	Any non-interfering channel	Vert Amp thru 47K to point ⑭ Low side to chassis	A1	Adjust to place 41.25MC in trap notch. Use sufficient generator output, so that trap notch is clearly defined. (Fig.1).
2	"	"	"	47 25MC	"	"	A2	Adjust to place 47.25MC in trap notch. Temporarily remove 3 volt bias to provide better trap notch definition. (Fig.1).
3	"	"	"	42 25MC	"	"	A3	Adjust to place marker at 50% on curve as in Fig. 1.
4	"	"	"	45 75MC	"	"	A4, A5	Adjust A4 to place marker at 60% on curve. Simultaneously adjust A5 for flat-top and symmetrical response similar to Fig.1.
5	"	"	"	41 25MC 42 25MC 45 75MC 47 25MC	"	"	A6, A7	Simultaneously adjust A6 and A7 for response similar to Fig. 2. If necessary, SLIGHTLY retouch A3 thru A7 for desired results.

SOUND IF ALIGNMENT

Set contrast control fully clockwise.
Connect two matched 100K (±1%) resistors in series from point ⑭ to chassis. The junction of these two resistors is alignment point ⑭ as shown on the schematic
A9 and A10 have two points of tuning. One is with the cores toward the center of the coil form. The other with the cores farthest apart. Use the latter
Maintain generator output to provide a 5 to 10 volt deflection on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6	005MFD	High side to point ⑭ Low side to chassis	4 5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point ⑭ Common to chassis	A8, A9	Adjust for maximum deflection.
7	"	"	"		DC probe to point ⑭ Common to chassis	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 6 and 7 for best results

A local TV station signal may be substituted for the generator.

4 5MC TRAP ALIGNMENT

Tune the receiver to a local TV station and advance the contrast control. Turn the area switch to the "Fringe" position. SLIGHTLY misadjust the fine tuning control until there is a 4.5MC beat pattern visible in the picture. Adjust A11 for MINIMUM beat pattern with the sleeg as far out of the coil as possible and still have a MINIMUM beat.

VHF OSCILLATOR ALIGNMENT

Connect short from point ⑦ to chassis in order to ground the tuner AGC.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms
Use only enough sweep generator output to provide a usable pattern on scope
Set the fine tuning to the point where channels 2 and 13 align are visible at the same time This will place the fine tuning at mid-range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead	213MC (00MC Swp)	211 25MC 213 75MC	13	Vert Amp. thru 47K to point ⑭ Low side to chassis	A13	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%
			207MC (00MC Swp)	205 25MC 205 75MC	12		A13	
			201MC (00MC Swp)	199 25MC 203 75MC	11		A14	
			195MC (00MC Swp)	193 25MC 197 75MC	10		A15	
			189MC (00MC Swp)	187 25MC 191 75MC	9		A16	
			183MC (00MC Swp)	181 25MC 185 75MC	8		A17	
			177MC (00MC Swp)	175 25MC 179 75MC	7		A18	
			85MC (00MC Swp)	83 25MC 87 75MC	6		A19	
			79MC (00MC Swp)	77 25MC 81 75MC	5		A20	
			59MC (00MC Swp)	57 25MC 71 75MC	4		A21	
			83MC (00MC Swp)	81 25MC 85 75MC	3		A22	
			57MC (00MC Swp)	55 25MC 59 75MC	2		A23	

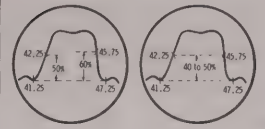


FIG. 1

FIG. 2

FIG. 3

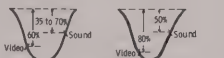


FIG. 4

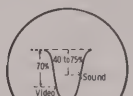


FIG. 5

FIG. 6

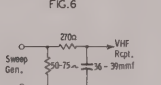


FIG. 7

FIG. 8

VHF RF AND MIXER ALIGNMENT FOR TUNER #TT-84 & TT-84A

Short AGC as under "VHF Oscillator Alignment".
Connect the synchronized sweep voltage from the **sweep generator** to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead	213MC (00MC Swp)	211 25MC 215 75MC	13	Vert. Amp. thru 47K to point ⑭ Low side to chassis.	A24	Adjust by expanding or compressing coil turns for maximum gain and limits as shown in Fig 4
10.	"	"	177MC (00MC Swp)	175.25MC 179.75MC	7	"	A25	Adjust for limits as shown in Fig. 4.
11	"	"	207MC (00MC Swp)	205.25MC 209.75MC	12	"		Check for response similar to Fig 4 on each channel If necessary, retouch A24 and A25 to bring response within limits on all channels
			201MC (00MC Swp)	199.25MC 203.75MC	11			
			195MC (00MC Swp)	193.25MC 197.75MC	10			
			189MC (00MC Swp)	187.25MC 191.75MC	9			
			183MC (00MC Swp)	181.25MC 185.75MC	8			

NOTE. If the bandwidth is too narrow, it may be necessary to adjust A26 (ground lead of C11) by compressing or expanding the coil turns.

12.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	85MC (00MC Swp)	83.25MC 87.75MC	6	"	*A27, A28, A30	Check for response curve similar to Fig. 5. If necessary, adjust (by expanding or compressing coil turns.) coil whose "A" number is preceded by (*) for proper marker positions. Adjust others for maximum gain and proper tilt.
13.	"	"	79MC (00MC Swp)	77.25MC 81.75MC	5	"	*A30, A31, A32	"
14.	"	"	69MC	67.25MC	4	"	*A33, A34, A35	"
15.	"	"	63MC (00MC Swp)	61.25MC 65.75MC	3	"	*A36, A37, B38	"
16.	"	"	57MC (00MC Swp)	55.25MC 59.75MC	2	"	*A39, A40, A41	"

VHF RF AND MIXER ALIGNMENT FOR TUNER #VTT-86Y

Ground the AGC as under "VHF Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (00MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point ⑭ Low side to chassis.	A24	Adjust by expanding or compressing coil turns for maximum gain and limits as shown in Fig. 4.
18.	"	"	177MC (00MC Swp)	175.25MC 179.75MC	7	"	A25	Adjust for limits as shown in Fig. 4.
19.	"	"	207MC (00MC Swp)	205.25MC 209.75MC	12	"		Check for response similar to Fig. 4 on each channel. If necessary, retouch A24 and A25 to bring response within limits on all channels
			201MC (00MC Swp)	199.25MC 203.75MC	11			
			195MC (00MC Swp)	193.25MC 197.75MC	10			
			189MC (00MC Swp)	187.25MC 191.75MC	9			
			183MC (00MC Swp)	181.25MC 185.75MC	8			
20.	"	"	85MC (00MC Swp)	83.25MC 87.75MC	6	"	*A42, A43	Check for response similar to Fig. 6. If necessary, adjust (by expanding or compressing coil turns) coils whose "A" number is preceded by (*) for proper marker positions. Adjust other for maximum gain and proper tilt.
21.	"	"	79MC (00MC Swp)	77.25MC 81.75MC	5	"	*A44, A45	"
22.	"	"	69MC (00MC Swp)	67.25MC 71.75MC	4	"	*A46, A47	"
23.	"	"	63MC (00MC Swp)	61.25MC 65.75MC	3	"	*A48, A49	"
24.	"	"	57MC (00MC Swp)	55.25MC 59.75MC	2	"	*A50, A51	"

IF TRAP ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
25.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	44.0MC (00MC Swp)	44.0MC	Between Channels 13 and 2	Vert. Amp. thru 47K to point ⑭. Low side to chassis	A53	Adjust for MINIMUM at 44.0MC between equal peaks

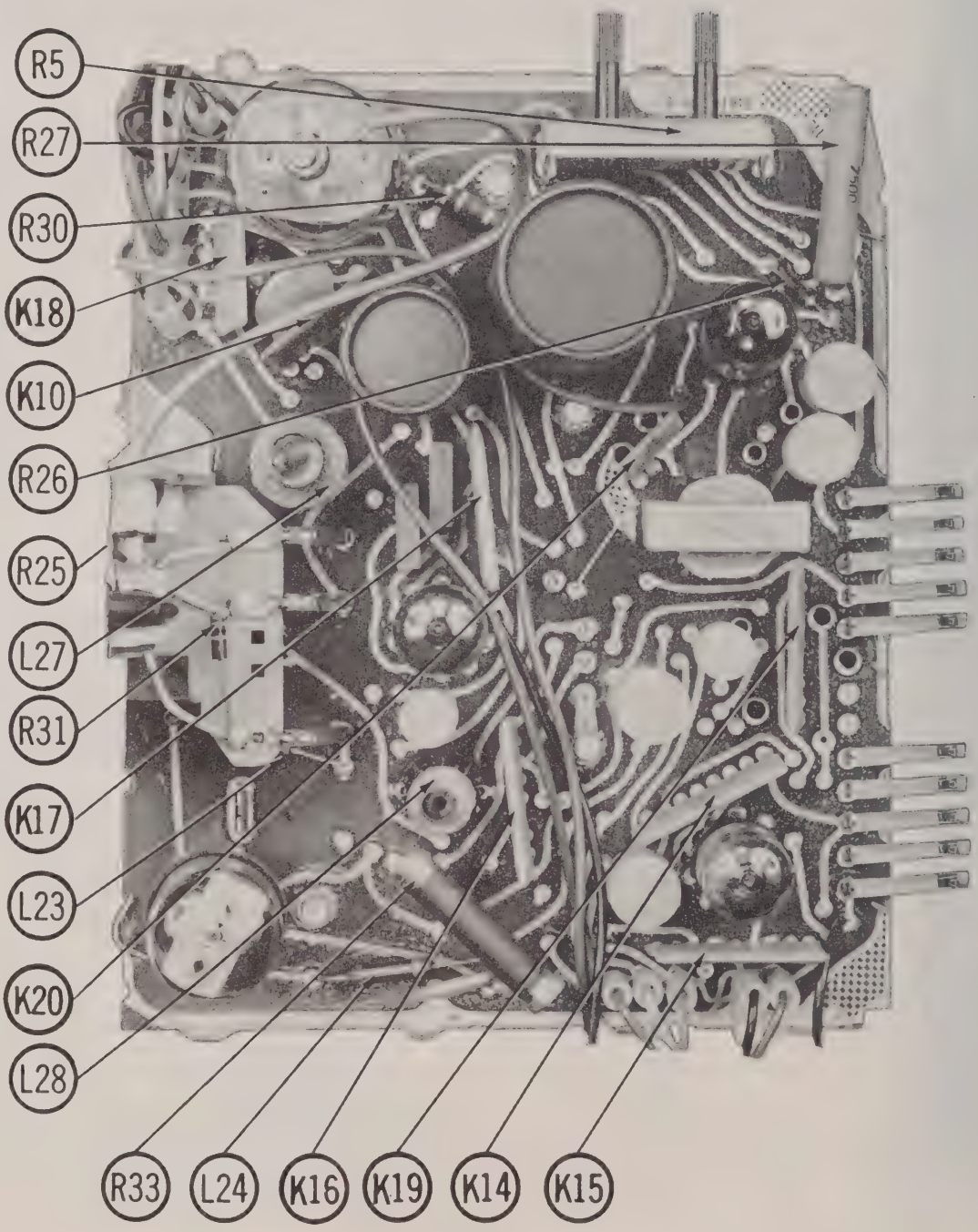
UHF IF ALIGNMENT

Unplug UHF tuner output cable from the VHF tuner
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

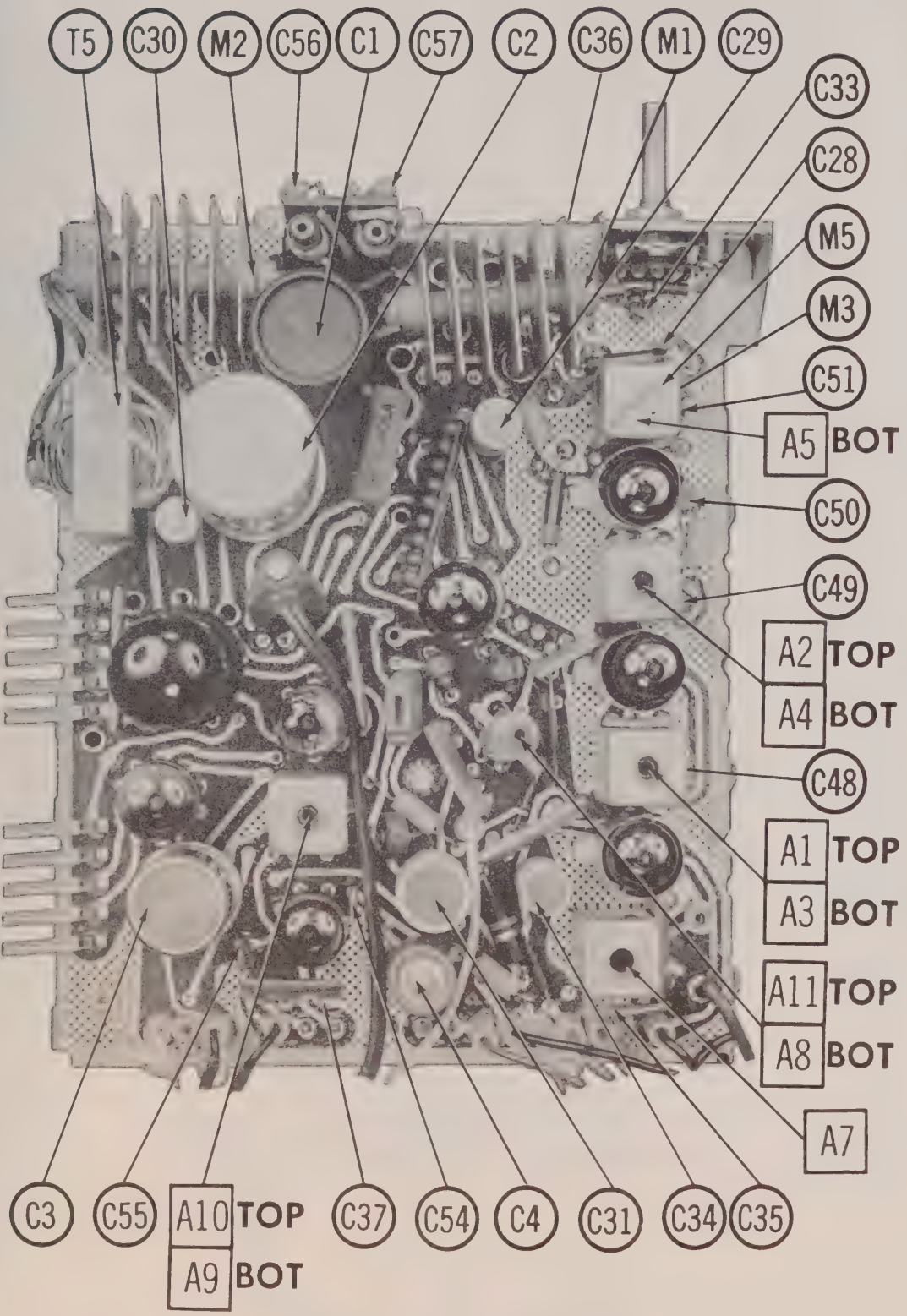
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
26.	Fig. 7	High side to UHF input receptacle thru matching network (Fig. 7). Low side to chassis.	44.0MC (00MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. thru network (Fig. 7) to point ⑭. Low side to chassis.	A53, A54	Adjust A53 for proper marker positions and A54 for maximum gain and proper tilt. (Fig. 8).

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



RESISTOR AND INDUCTOR IDENTIFICATION

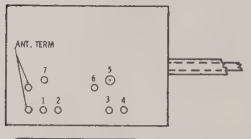


CAPACITOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

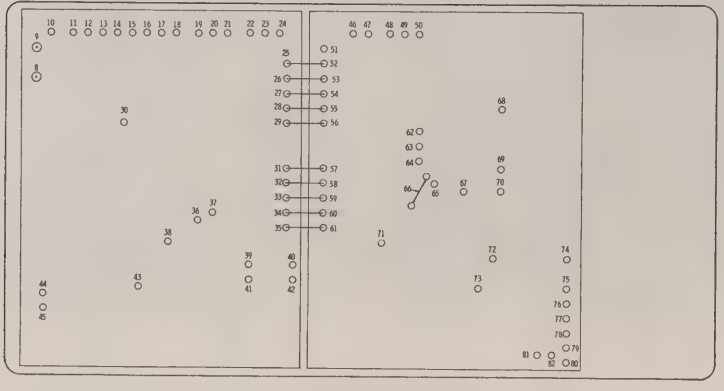
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1.5Meg	0Ω	4.5Ω	5.5Ω	■ 2000Ω	■ 4300Ω	0Ω		
V2	5U8	■ 4300Ω	1.5Meg	■ 180K	6.5Ω	5.5Ω	■ 2000Ω	0Ω	0Ω	15K
V3	3CB6	1.5Meg	47Ω	6.5Ω	7.5Ω	■ 470Ω	■ 470Ω	0Ω		
V4	3CB6	1.5Meg	47Ω	7.5Ω	8.5Ω	■ 690Ω	■ 690Ω	0Ω		
V5	3CB6	.1Ω	120Ω	8.5Ω	9.5Ω	■ 220Ω	■ 220Ω	0Ω		
V6	12BY7A	● 210Ω	1.1Meg	0Ω	9.5Ω	9.5Ω	10.5Ω	† 4000Ω	† 22K	0Ω
V7	3AU6	47K	0Ω	10.5Ω	11.5Ω	■ 220Ω	■ 220Ω	150Ω		
V8	3AL5	INF	INF	4.5Ω	3.5Ω	12K	0Ω	0Ω		
V9	7AU7	† 33K	0Ω	1500Ω	3.5Ω	3.5Ω	22K	370K	170K	2.5Ω
V10	12L6GT	TP	13.5Ω	† 275Ω	† 55Ω	† 33K	NC	11.5Ω	¶	
V11	7AU7	† 680K	■ 1.7Meg	■ 0Ω	14.5Ω	14.5Ω	■ 9500Ω	20K	2200Ω	13.5Ω
V12	6CM7	ǂ 950Ω	NC	55Ω	14.5Ω	15.5Ω	■ ǂ5Meg	● 420K	● ǂ5Meg	● 7500Ω
V13	6CG7	† 72K	● 110K	1000Ω	1.5Ω	0Ω	† 10K	5Meg	1000Ω	0Ω
V14	12DQ6	NC	16.5Ω	NC	■ 470Ω	470K	NC	15.5Ω	0Ω	TOP CAP ǂ53Ω
V15	19AU4	NC	NC	¶	NC	† 57Ω	NC	230Ω	235Ω	
V16	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ283Ω
V17	17AVP4A	1.5Ω	● 1.8Meg	PIN 6 ǂ33K	PIN 10 ǂ33K	PIN 11 220K	PIN 12 2.5Ω			

† MEASURED FROM OUTPUT OF M2.
■ THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
■ MEASURED FROM 145V SOURCE.
ǂ MEASURED FROM PIN 3 OF V15.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION
TP TIE POINT

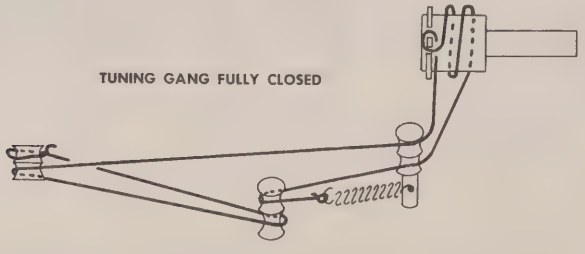


TOP VIEW

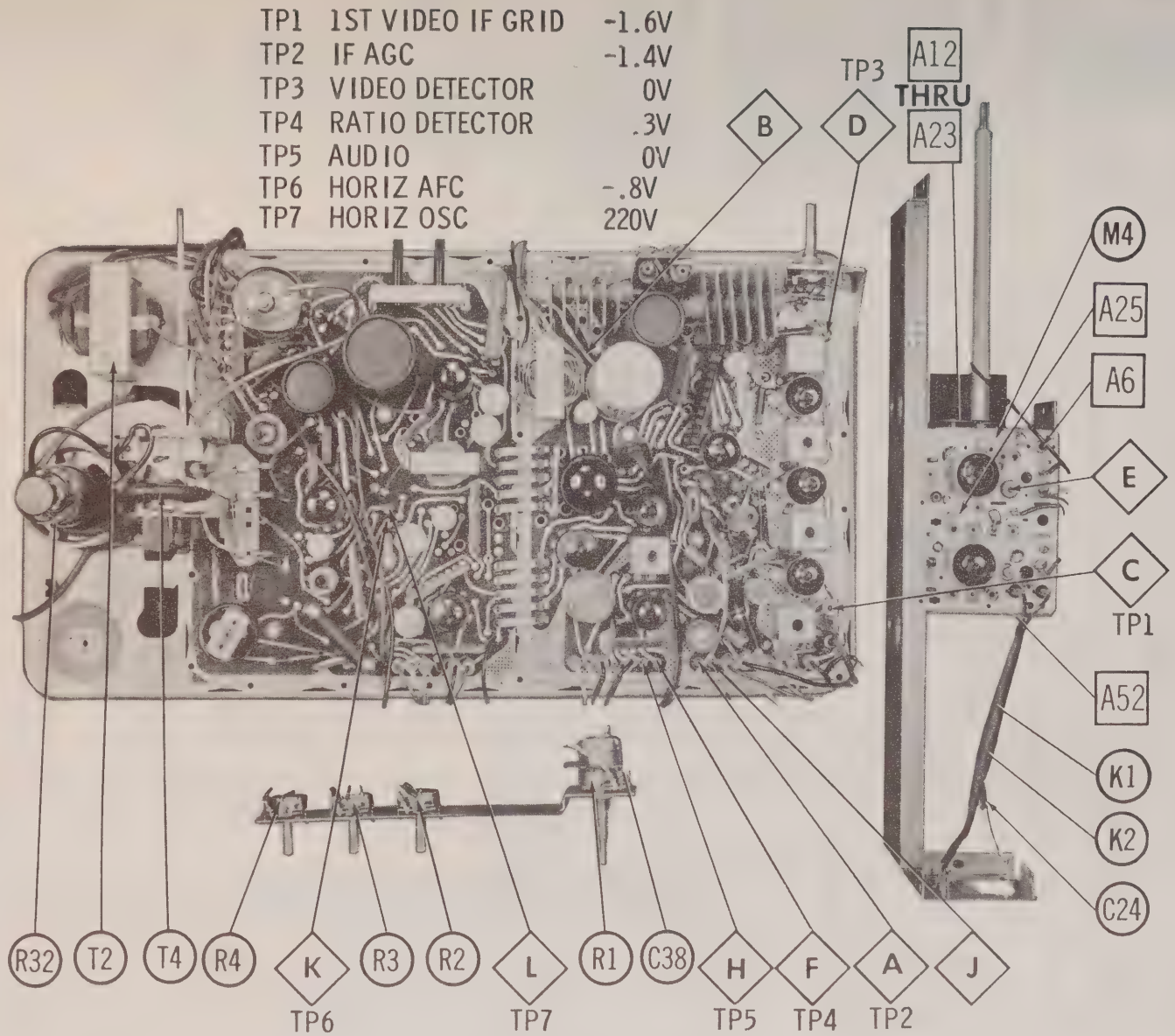
TERMINAL LOCATION GUIDE



TERMINAL LOCATION CHART



UHF DRIVE CORD STRINGING



CHASSIS TOP VIEW

MOTOROLA MODELS V17127CH, V17128-1, -2, -3,
17127CH, 17128-1, -2, -3 (Ch. TS-422, Y)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	5BC5	Note 1
V2	Mixer-Osc.	5U8	
V3	1st. Video IF Amp.	3CB6	
V4	2nd. Video IF Amp.	3CB6	
V5	3rd. Video IF Amp.	3CB6	
V6	Video Output	12BY7A	
V7	Sound IF Amp.	3AL5	
V8	Ratio Det.	3AL5	

ITEM No.	USE	TYPE	NOTES
V9	AF Amp. - Horiz. AFC	7AU7	
V10	Audio Output	12L6GT	
V11	Sync. Sep. -Sync. Phase Inv.	7AU7	
V12	Vert Osc. -Vert Output	6CM7	
V13	Horiz. Mult.	6CG7	
V14	Horiz. Output	12DQ6	
V15	Damper	19AV4	
V16	HV Rectifier	1B3GT	

Note 1. Some versions may use 3CB5 in this application.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: MOTOROLA Part No	GENERAL ELECTRIC Part No	SYLVANIA Part No	NOTES
V17	17AV4P4A 17AVP4 17AVP4	17AT4P4A, 1 17AT4P4A 2 17AVP4	1 Aluminized 2 Silver Screen 85°	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	MOTOROLA Part No	REPLACEMENT DATA: AEROVOX Part No	CORNELL DUBILIER Part No	MALLORY Part No	PYRAMID Part No	SANGAMO Part No	SPRAGUE Part No	NOTES
C1	140	150	23D738833	AFH61-23-01				MT-15150	N2394 *	
C2A	150	300	23D738835	AFH83-485-80		TV495 V43345			N2390 *	
B	200	150								
C	60	300								
C3A	10	350	23D738833	AFH1-31-01		TC262			N2393 *	
B	10	50								
C4	12	50	23D738831	PRS50V10	BBR10-50	TC32	TD-10-50	FM-0510	TVA-1304	
C5A	220	150	23D738834	AFH32-21-08					N2382 *	
B	45	50				TC75				
C6	20	450	23D738836							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	VOLT	MOTOROLA Part No	AEROVOX Part No	CENTRALAB Part No	CORNELL DUBILIER Part No	ERIE Part No	MALLORY Part No	SPRAGUE Part No	NOTES
C7	15		21R122331	NPO-81-15	TCZ-15	C10Q15C	TCO-15		5TCC-Q15	NP0
C8	68		21R122681	SI 68	SA-68N	LTSQ68	SD-68	UC-5460	SGA-Q68	
C9	.000		21A739920	EF-001	MFT-1000				503C-D1	
C10	.005		21R735005		DD-502		315-D	CT565A		
C11	.000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C12	.000		21R15386	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C13	.01		21R134761	NPO-81-10	TCZ-10	C10Q2C	TCO-10		5TCC-Q1	
C14	1.0		21R124552							
C15	.000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C16A	.000		21R409037	BPD-Z3001	DD2-102	BYC6DL	ED2-001	DCD521	5HK-XD1	
B	.000									
C17	.000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C18	.000		21R120572	EF-001	MFT-1000				503C-D1	
C19	.18		21R120578							N150
C20	3.4		21R124489	NPO-81 3.3	TCZ-3R3	C10V3MC	TCO-3.3	CT-5533	5TCCD-V33	NP0
C21	10		21R134579	NPO-81 10	TCZ-10	C10Q1C	TCO-10	ET-541	5TCC-Q1	NP0
C22	.000		21A739920	EF-001	MFT-1000				503C-D1	
C23	1.0		21R14677							
C24	470	2000	21R13479	NYD-30-470	DD30-471	HVB20T47	MD5-470	DC30347	5GA-T5	
C25	.000		21R120572	EF-001	MFT-1000				503C-D1	
C26	.000		21R120572	EF-001	MFT-1000				503C-D1	
C27	.000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C28	3.9		21R134550			C10V4C				NP0
C29	.1	100	21R42491	P288N-1	DF-104	BC52P1Z		ACE40E	28K-P10	
C30	.047	400	21R24892	BPD-05	DF-503	BC6S47Z		ACE64E	68K-P47	
C31	400		21R42466	P488N-1	DF-104	BC6P1Z		ACE40E	48K-P10	
C32	5000	2000	21R124675			BYC30D5			20HKD-D5	
C33	.000		21R124689	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C34	35	100	21R122249	P288N-25		BC52P2Z		ACE60E	28K-P22	
C35	120		21A124978	NPO-81-120	TCZ-120	C10T1MC	TCO-120		5TCC-T10	NP0
C36	470	2000	21R121478	HVD-30-470	DD30-471	HVB20T47		DC30347		
C37	470		21R125427	BPD-00047	DD-471	BYA10T47	ED-470	DC-5347	5GA-T47	
C38	5000		21R11532	BPD-005	DD-502	BYA10D5	RD-005	DC525	5HK-D5	
C39	.047	400	21R124573	BPD-05	DD-503	BC6S47Z		ACE61E7	48K-S47	
C40	.01	400	21R24450	BPD-01	DD-103	BC6S1Z	RD-01	ACE61E7	48K-S1	
C41	.047	400	21R124573	BPD-05	DF-503	BC6S47Z		ACE61E7	48K-S47	
C42	.047	400	21R124573	BPD-05	DD-503	BC6S47Z		ACE61E7	48K-S47	
C43	.004	400	21R124450	BPD-004	D6-402		ED-004		48K-S4	
C44	380		21B758864	1484-00039		1R3T38			M5-339	
C45	330		21B758864	1484-00039		1R3T38			M5-339	
C46	56	5000			DD30-560					Note 1
C47	220	2000	21R120150		DD30-220	BYA10Q2			5TCC-T22	
C48	1000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C49	1000		21R15286	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C50	1000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C51	1000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C52	5000	3000	21R124475			BYC30D5			20HKD-D5	
C53	.25	600	23R124677	P468N-25		BC6P2Z		ACE60E	68K-P22	
C54	1000		21R15396	BPD-001	DD-102	BYA6DL	RD-1000	DC521	5HK-D1	
C55	1500		21R124470	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C56	180		21R124685		CM15-181	C10T1RC	TCT-180			M750
C57	180		21R124685		TCM-180	C10T1RC	TCT-180			M750

Note 1. Not used in chassis coded lower than A-01.

CONTROLS

ITEM No.	RATING: RESIST-ANCE	WATTS	REPLACEMENT DATA: MOTOROLA Part No	CENTRALAB Part No	CLAROSTAT Part No	IRC Part No	MALLORY Part No	INSTALLATION NOTES
R1A	1500Ω	1	18D740845	F1-7	R7Y-613		UF152R	Contrast
B	1Meg			R2-63	Not req.		UR16A	Volume
C	Switch			KS-1	NR		US-26	Attach to R1B
R2A	5Meg	1	18D740830	B-27 *	A47-5Meg-47 *	QU-141 *	Not req.	Brightness with 1Meg stop.
B	Shaft			Not req.	Not req.	Not req.	Not req.	Attach to R2A
R3A	500K	1	18K740841	B-26	A47-500K-6	QU-133		Vert hold
B	Shaft			Not req.	KSH-3	Not req.		Attach to R3A
R4A	100K	1	18K740840	B-25	A47-100K-6	QU-136		Horiz. hold
B	Shaft			Not req.	KSH-3	Not req.		Attach to R4A
R5A	750Ω	1	18A743T3					Vert lin.
B	5Meg							Vert size with 1Meg stop.

* Use a 1Meg resistor in series with right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: MOTOROLA Part No.	IRC Part No.	NOTES
R6	22K		6H6028	BTS-22K	
R7	47K		6H6036	BTS-47K	
R8	3300Ω		6H6036	BTS-3300	
R9	4700Ω		6H6034	BTS-4700	
R10	33K		6H6467	BTS-39K	
R11	1000Ω		6H6301	BTS-1000	
R12	10K		6H6444	BTS-10K	
R13	2200Ω		6H6069	BTS-2200	
R14	1000Ω		6H6229	BTS-1000	
R15	15K		6H2119	BTS-15K	
R16	3300Ω		6H6567	BTS-3300	
R17	4700Ω		6H6039		
R18	10000Ω		6H6229		Note 1
R19	2200Ω		6H6270		

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: MOTOROLA Part No	IRC Part No	NOTES
R20	1.5Meg		6H5460	BTS-1.5Meg	
R21	470Ω		6H6040	BTS-470	
R22	39000Ω	10	17K739997	PWU-3900	
R23	22K	2	6H2008	BTS-22K	
R24	33K		6H6410	BTS-33K	Note 2
R25	330K	1	6H5757	BTS-330K	
R26	100Ω		6H6326	BTS-100	
R27	75000Ω	10	17K739995	PWU-7500	
R28	560Ω		6K122803		
R29	5600Ω		6K122802		
R30	4700Ω	1			
R31	1MΩ		6K133847	BTA-470	
R32	3.3Ω		17K489618	BTA-1M	
R33			6K128320	BW1-3.3	
R34	7.5Ω	5	17K738462	FR7.5	Note 3

Note 1. Used only in Chassis coded lower than A-01.
Note 2. Located inside picture tube socket.
Note 3. A special temperature coefficient 3500 (Code 205) (Hot) approximately.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA Part No	Halldorson Part No	Merit Part No	RCA Type No.	Sonar Part No.	Thordarson Part No	Triad Part No.	NOTES
T1	Vert Osc.	25D739986							
T2	Vert Out put	25D739998	Z1804	A-3037	22Z11	V313	A-8123	28S52	A-102X
T3	Vert Out put (Horiz. (240MH) (90°) -Vert (40MH) Rear Cover and Centering Device	24D760587	DF-810 2	MD7-122 2	23SD1 1 2	YWP19/43 1 2	DY-18A 1 2	Y-18 1 2	Y-61 & NW4 1 YC1
	Yoke Clamp	42A736157							CLI
	Rubber Yoke Wedge	42A739257							
T4	Horiz. Output	24D740680 3		HVO-139					
	Primary Coil	24C740138							
	Secondary Coil	24C740136							

1 Connect same as original and use original core clamp.
2 Use original rear cover and centering device, and original yoke damping network if necessary.
3 Complete horizontal output transformer assembly.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: MOTOROLA Part No	Halldorson Part No	Merit Part No	Sonar Part No	Thordarson Part No	Triad Part No.	NOTES
T5	2500Ω	3-4Ω	25D740256	Z1105 1 2	A-3031 1 3	A-3676 1	23S45 1	S-1X 1	1 Fabricate mounting with original terminal board. 2 Tape taps on primary winding.

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V C IMP	REPLACEMENT DATA: MOTOROLA Part No	QUAM Part No.	NOTES
SP1	4"	PM	3-4Ω	50D740427 1 50K740428 2	4AI 4AI	1 Motorola Part # includes L28. 2 Alternate Part Number

COILS (RF-IF)

ITEM No.	USE	MOTOROLA Part No.	NOTES
L1	Ant. Coil	24B740578
L2	IF Trap	24B740582
L3	Ant. Coils	1V740618
L4	FIL. Choke	24K730304

Channel 2-13, Complete Wafer Assy. includes C7 and C8

ITEM No.	USE	MOTOROLA Part No.	NOTES
L5	RF Coils	1V740619	Channel 2-13, Complete Wafer Assy. includes C10, C20, R13, and R14
L6	Osc. Coils	1V741696	Channel 2-13, Complete Wafer Assy. includes C23, C24, and R16
L7	Mixer Plate Coil	24D740435	

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA Part No.	MEISSNER Part No	MERIT Part No.	MILLER Part No.	NOTES
L8	1st. Video IF	24D740285				
L9	2nd. Video IF	24D740288	17-5018			Includes 41.25MC Trap
L10	RF Choke	24K730291	19-1001	BC-562	6804	L 3 Microhenries
L11	FIL. Choke	24K730291	19-1001	BC-562	6804	L 3 Microhenries
L12	3rd. Video IF	24D740287	17-5013			Includes 47.25MC Trap
L13	RF Choke	24K740648	19-1005	BC-566	6813	10.5 Microhenries
L14	FIL. Choke	24K730291	19-1001	BC-562	6804	L 3 Microhenries
L15	RF Choke	24K740646	19-1005	BC-566	6813	10.5 Microhenries
L16	Shunt Peaking Coil	24K738804				
L17	Series Peaking Coil	24K738803				Wound on 180Ω Resistor
L18A	4.5MC Trap	24D740283				
B	1st. Sound IF					
L19	Shunt Peaking Coil	24D738801				
L20	Shunt Peaking Coil	24K738803				Wound on 180Ω Resistor
L21	Ratio Det.	24D740383				
L22	FIL. Choke	24K730291	19-1001	BC-562	6804	L 3 Microhenries
L23	RF Choke	24K740648	19-1005	BC-566	6813	10.5 Microhenries
L24	RF Choke	24K740646	19-1005	BC-566	6813	10.5 Microhenries
L25	Line Choke	24B740967				7.9 Microhenries, 4.5MC
L26	Line Choke	24B740967				7.9 Microhenries, 4.5MC
L27	RF Choke	1A738800				5.5 Microhenries, Wound on .068MFD Cap.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	SEC.	REPLACEMENT DATA: MOTOROLA Part No.	MEISSNER Part No.	MILLER Part No.	RCA TYPE No	Sam Part No.	Thordarson Part No	NOTES
L28	27Ω		24B738797						

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	REPLACEMENT DATA: INDUCTANCE (D. CURRENT 1000 *Ca)	MOTOROLA Part No.	Helldorson Part No	Merit Part No	Thordarson Part No	Triad Part No.
L29	.335A	58Ω	1.1Hy.	3B740436	C-8040	C-3894	C-3327	39C41 C-34X

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA Part No	REPLACEMENT DATA
K1	Aud. Coupling	470MMF, 3 1Meg	5ID740335	
K2	Aud. Coupling	470MMF, 3 1Meg	5ID740335	
K3	Converter Circuit	470MMF, 470Ω, 33K, 47Ω	5ID738939	
K4	1st. IF Circuit	470MMF, 10000MMF, 470MMF, 470Ω, 2.2Meg	5ID738889	
K5	2nd. IF Grid	470MMF, 33K, 47Ω	5ID738929	
K6	2nd. IF Circuit	5000MMF, 470MMF, 470Ω	5ID738939	
K7	3rd. IF Circuit	10000MMF, 33K, 120Ω	5ID738763	
K8	AGC Coupler	68MMF, 1.5Meg, 1Meg, 100K, 150Ω, 10K	5ID738886	Erie PACT09
K9	Video Output	33MMF, 3 2MMF, 100K, 220K	5ID738887	
K10	Vertical Blanking	10000MMF, 10000MMF, 470K, 68K, 10K	5ID740087	
K11	Sound IF	1500MMF, 5000MMF, 5000MMF, 5000MMF, 47K, 150Ω, 220Ω	5ID738754	
K12	Ratio Det.	10000MMF, 5000MMF, 10000MMF, 2200Ω, 33K, 12K	5ID738857	
K13	Audio Output	10000MMF, 10000MMF, 33K	5ID738892	
K14	Sync. Coupler	470MMF, 2250MMF, 470MMF, 6800Ω, 27K, 680K, 270K, 1.5Meg, 470K	5ID739009	
K15	Horiz. AFC	10000MMF, 2350MMF, 10000MMF, 560K, 22K, 2200Ω, 500K, 22K	5ID739011	
K16	AFC Grid	2000MMF, 10000MMF, 700MMF, 4.7Meg, 82K, 5800Ω	5ID739010	
K17	Horiz. Input	2000MMF, 4700Ω, 68K, 470K, 6800Ω, 10000	5ID738890	
K18	Vert Coupler	150MMF, 150MMF, 68KΩ	5ID738888	
K19	Vert Integrator	4700MMF, 4700MMF, 22K, 22K, 10K, 390K	5ID738891	
K20	Vertical Osc. Coupler	4700MMF, 1800Ω	5ID740168	

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: MOTOROLA Part No.	FEDERAL	GENERAL ELECTRIC	INTERNATIONAL	MALLORY Part No.	SARKES TARZIAN Part No.	NOTES
M1	.25	48B126453 1	1338A 1		MR300 1	66300A 1	300 1	
M2	.525	48B126453 1	1338A 1		MR300 1	66300A 1	300 1	

1 Selenium Type

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: MOTOROLA Part No.	CBS Part No.	SYLVANIA Part No.	NOTES
M3		48C739300	1N60	1N60	Video Det. (Clip in)

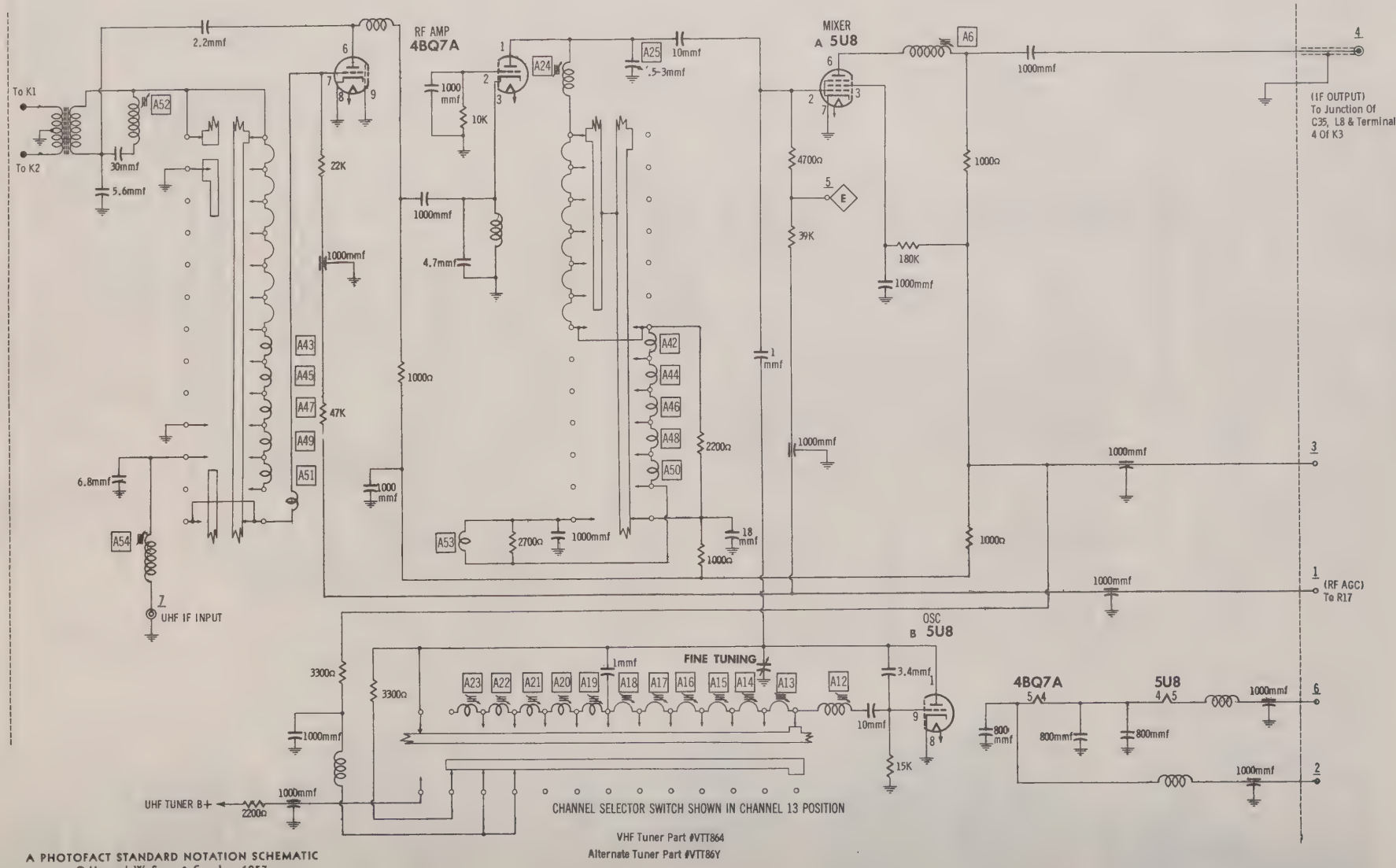
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA Part No.	NOTES
M4	Tuner	TT84A	VHF-Chassis TS-432A-00
	Tuner	TT84	VHF-Chassis TS-432
	Tuner	VTT-86T	VHF-Chassis TS-432T
	Tuner	WTT-87	VHF-Chassis TS-432T
M5	Crystal Det. Assy.	24B740284	Includes 4th Video IF, Caps, & M3
	Crystal Det. Assy.	24K742987	Includes 4th Video IF, Sound Choke, Caps & M3
M6	Switch	40B740180	Area Selector (Rotary Wafer)
	Printed Board	84B740169	Video, Audio (Does not include components.)
	Printed Board	84B740230-0	Sweep (Does not include components.)
M7	Centering Device	48A732165	Includes Rear Yoke Cover
M8	Ion Trap	29B734528	

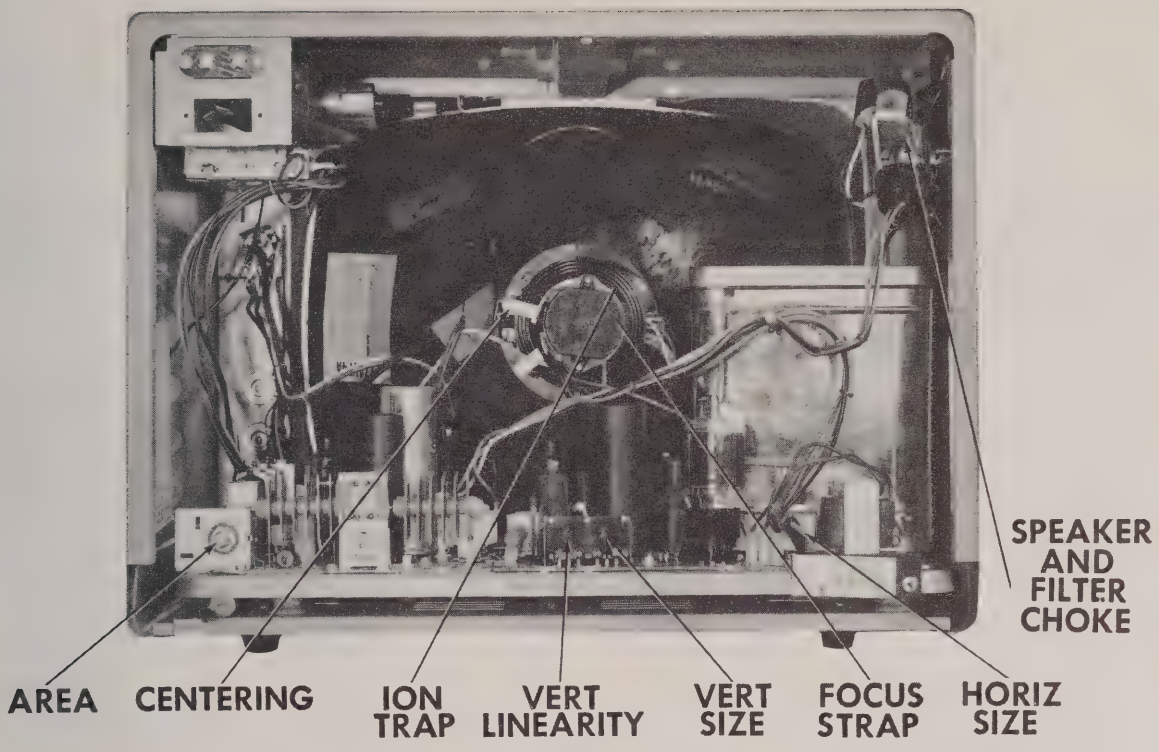
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	6K740801	Tinted - Models 17T38-1, -3, -7, 17T38-1, -3, -3
Safety Glass	6K741309	Models 17T37CH, 17T37CH
Bezel	15K740812	Models 17T38-1, -3, -3, 17T38-1, -3, -3
Bezel	15K739513	Models 17T37CH, 17T37CH
Knob	36K74U10	VHF Channel Selector - Models 17T28-1, -3, -3, 17T37CH
Knob	36K739581	VHF Channel Selector - Models 17T38-1, -3, -3, 17T37CH
Knob	36K739680	Fine Tuning - Models 17T28-1, -2, -3, 17T38-1, -3, -3, 17T37CH, 17T37CH
Knob	36D738678	Co-Ch-Vol-Volume - Models 17T38-1, -3, -3, 17T37CH, 17T37CH
Knob	36D738679	Contrast - Models 17T38-1, -3, -3, 17T37CH, 17T37CH
Knob	36H740349	Horiz. Hold, Vert Hold, Brightness - Models 17T38-1, -3, -3, 17T37CH, 17T37CH
Knob	36B7U234	Area Selector - Models 17T38-1, -3, -3, 17T38-1, -3, -3, 17T37CH, 17T37CH
Dial	36C738675	UHF - Models 17T38-1, -3, -3, 17T37CH
Cabinet	16K739968	Table-Metal - Models 17T38-1, 17T38-1
Cabinet	16K740818	Table-Metal - Models 17T38-3, 17T38-3
Cabinet	16K740814	Table-Metal - Models 17T37-3, 17T37-3
Cabinet	16K739967	Table-Metal - Models 17T37CH, 17T37CH



ALTERNATE TUNER SCHEMATIC

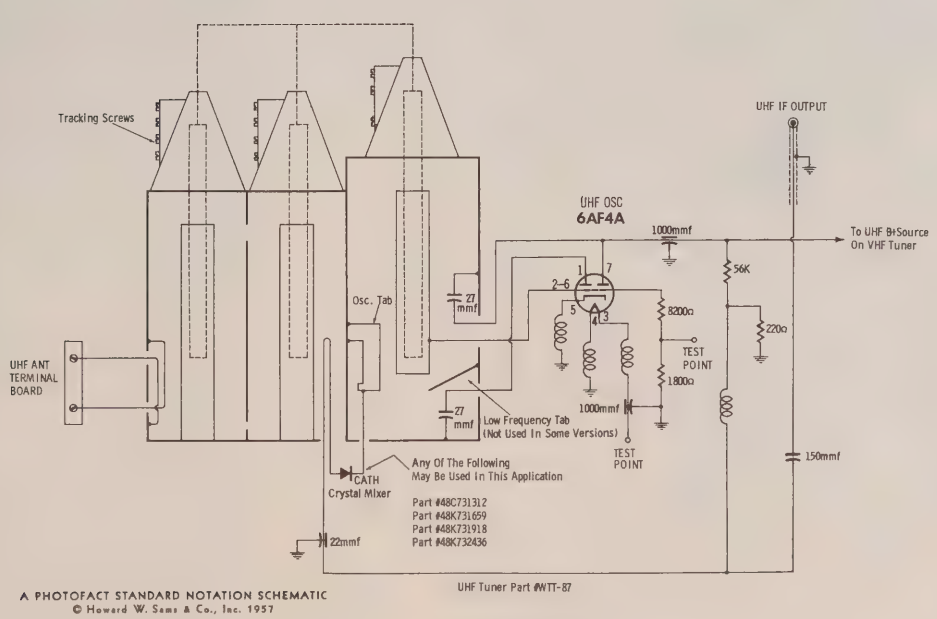


CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

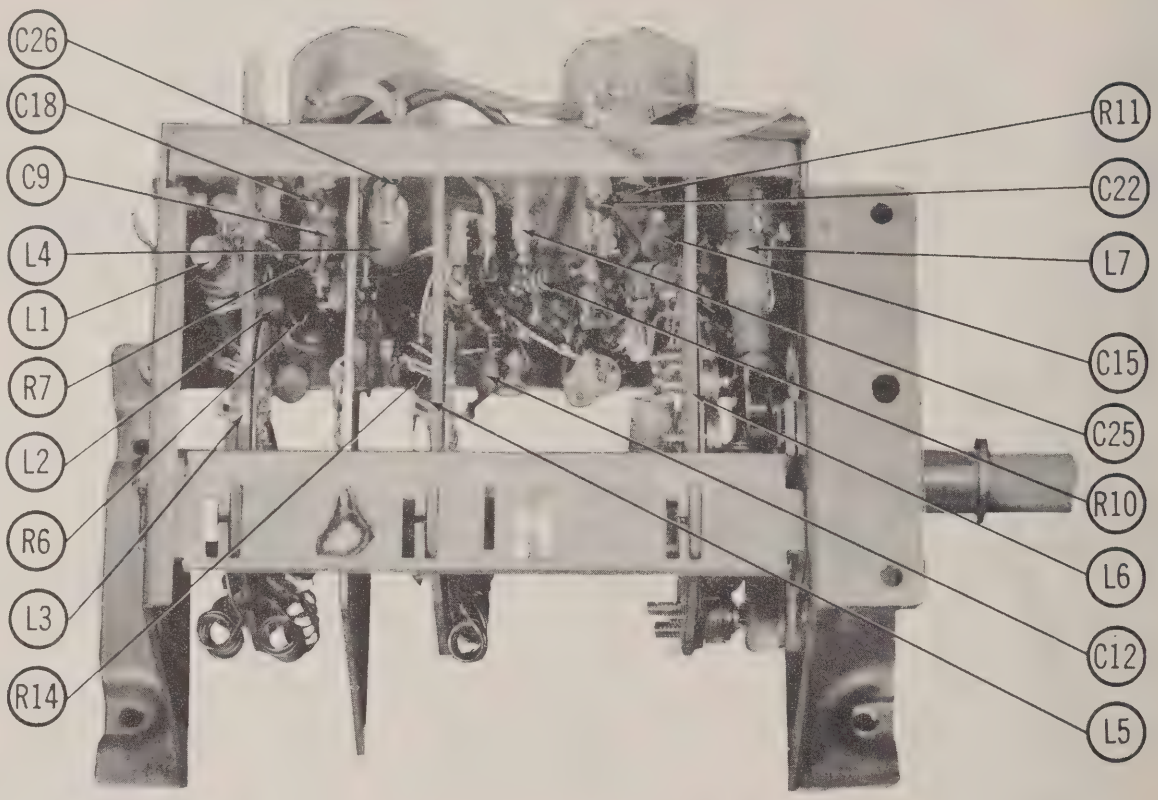
Turn the set on and tune in a TV station, preferably with a test pattern.

1. Set all controls for a normal picture.
2. Connect a short clip lead from point (K) to chassis.
3. Connect a .1MFD 400 volt capacitor from point (L) to chassis.
4. Adjust the horizontal hold control until the picture is as stable horizontally as possible.
5. Remove the shorting capacitor from point (L) to chassis. Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. Do not touch the horizontal hold control during this adjustment.
6. Remove the short between point (K) and chassis. Adjust the horizontal hold control so that no horizontal fold-over is apparent on either side of the raster.

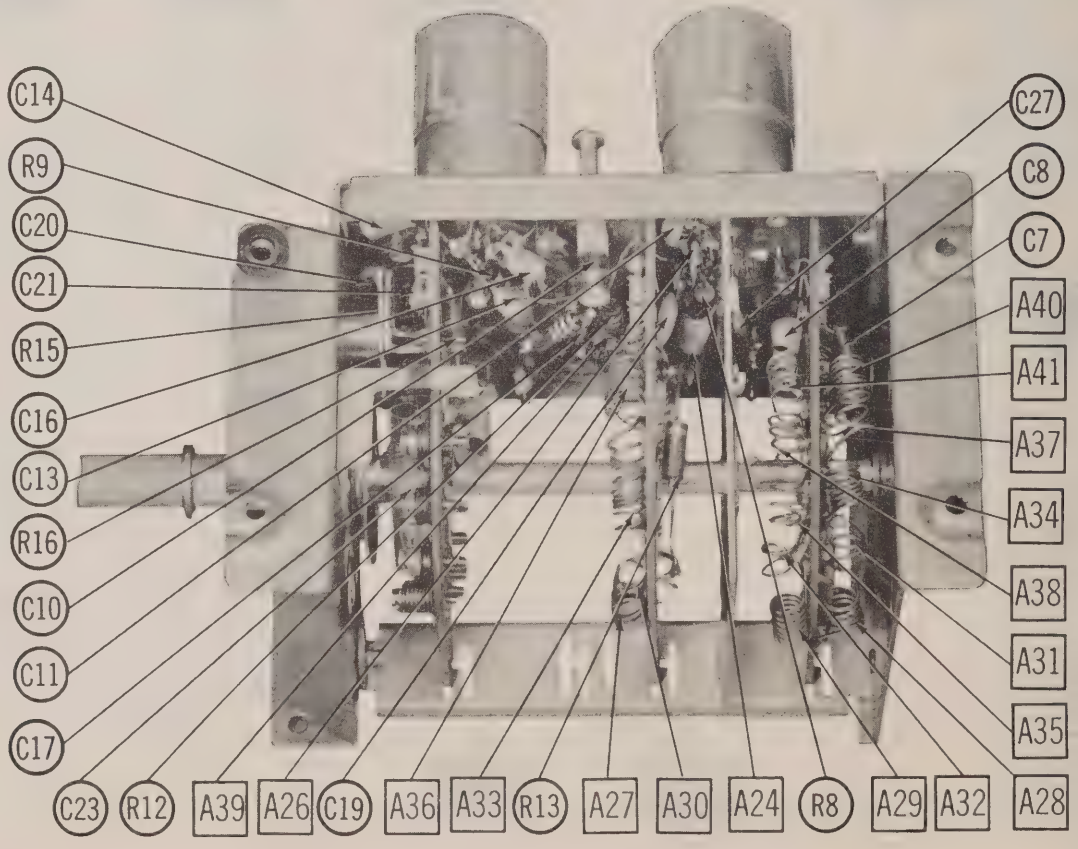


A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

ALTERNATE TUNER SCHEMATIC

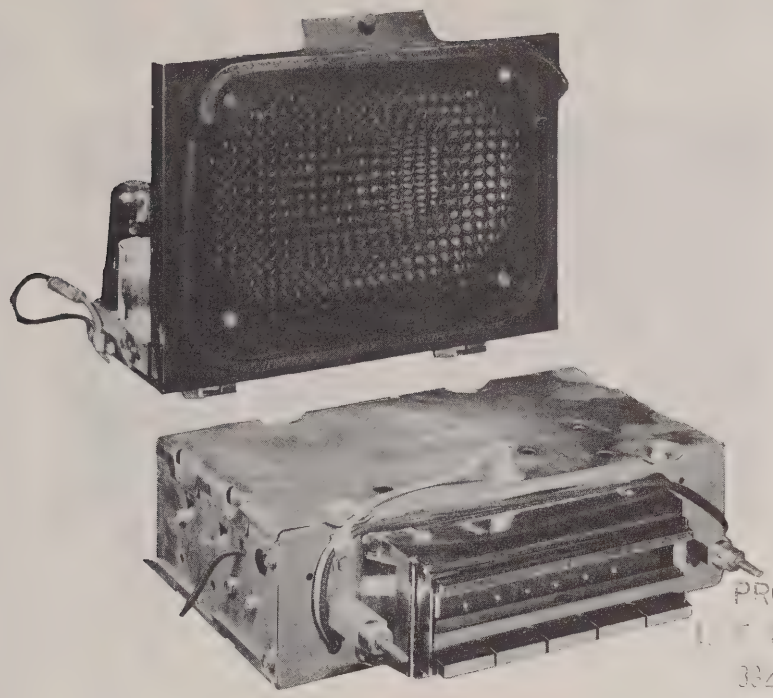


RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

PACKARD
MODEL 484649



PROPERTY OF
[illegible] BLANKENSHIP
3824 MEADE ST.
DENVER, COLORADO

PACKARD
MODEL 484649

TRADE NAME	Packard Model 484649 (For 1957 Packard Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver
TUBES (Eight)	Types 12BA6 RF Amp., 12BE6 Conv., 12BA6 IF Amp., 12BF6 Det.-AVC-AF Amp., 12AU7 Trigger, (2) 12V6GT Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.4 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control to "Treble".

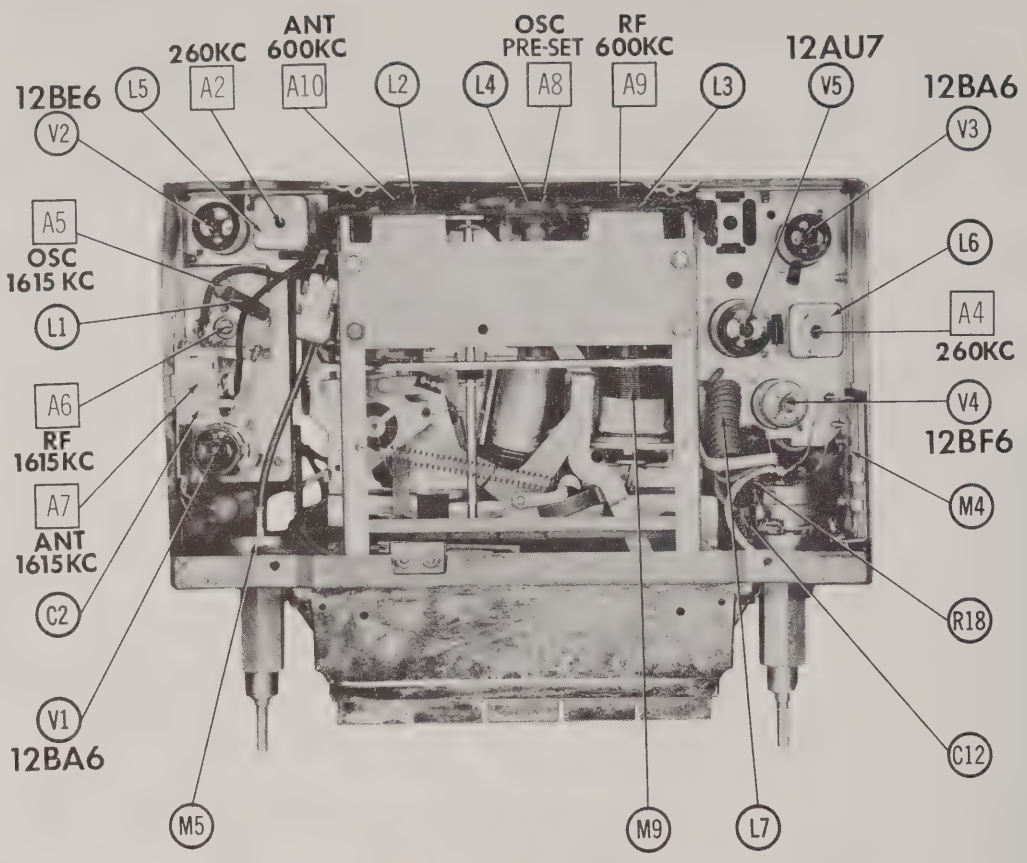
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	260KC (400~ Mod.)	High frequency end stop	Across C3	A1, A2, A3	Adjust for maximum output.
2	"	"	"	"	"	A4	Adjust for MINIMUM output.
	Check setting of oscillator core (A8). Rear of core should be 1 25/32" from mounting end of coil form.						
3	68MFD	High side to Antenna receptacle. Low side to chassis.	1615KC	High frequency end stop	Across C3	A5, A6, A7	Adjust for maximum output.
4	"	"	600KC	Tune to 600KC signal	"	A9, A10	"
5	"	"	1615KC	High frequency end stop	"	A6, A7	"
6	"	"	1000KC	Tune to 1000KC signal	"		If necessary, adjust pointer (with pointer adjustment screw) to coincide with 1000KC on dial.
7	With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, and adjust A7 for maximum volume.						

PUSHBUTTON ADJUSTMENT

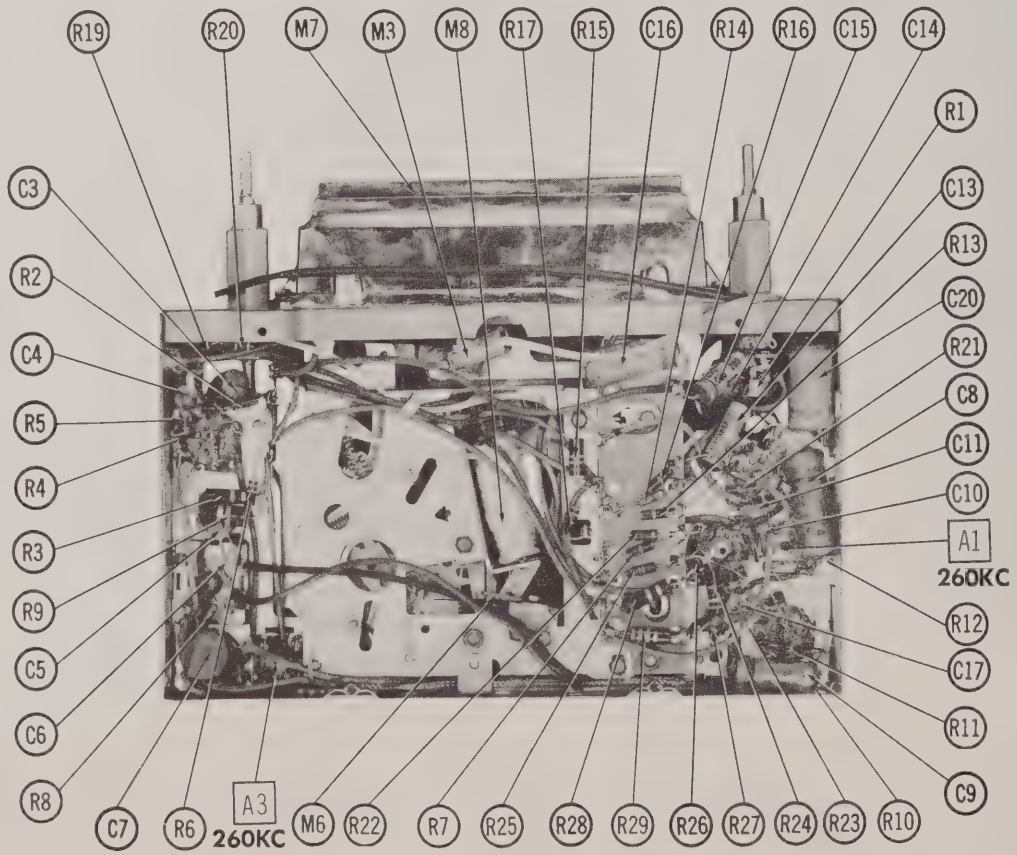
1. Open hinged door below the dial so that selector tabs are exposed.
2. Tune manually to desired station near left end of dial.
3. Move selector tab on extreme left until tab coincides with pointer tip.
4. Repeat procedure for remaining tabs choosing station from left to right on dial.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



CHASSIS-TOP VIEW



CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amp.	12BF6	

ITEM No.	USE	TYPE	NOTES
V5	Trigger	12AU7	
V6	Output	12V6GT	
V7	Output	12V6GT	
V8	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	724-724	AFH3-120	C0990	FP345.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

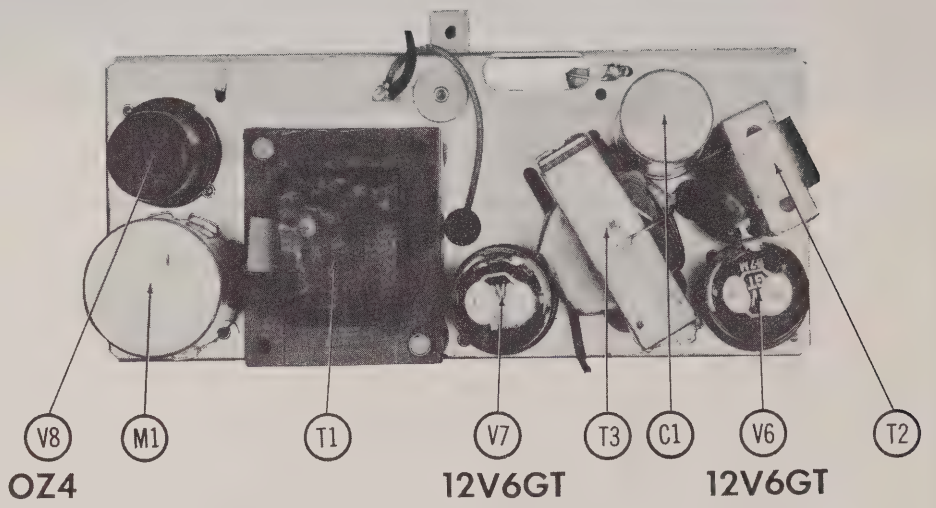
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2A			7266240							
B										
C3	.05	200	6612	BPD-05	DF-503	CUB4S5		GEM-415	2TM-S5	
C4	.05	200	6612	BPD-05	DF-503	CUB4S5		GEM-415	2TM-S5	
C5A	68			BPD-000068	DD-680	L10Q68	ED-68	UC-5468	5GA-Q68	①
B	39			BPD-000039	DD-390	L10Q39	ED-39	UC-5439	5GA-Q39	①
C6A			7242454							
B										
C										
D										
C7	250		7266596							N75
C8	.1	400	6613	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C9	.05	200	6612	BPD-05	DF-503	CUB4S5		GEM-415	2TM-S5	
C10	100	500	1219498	1469-0001	TCZ-100	22R5T1	TCO-100	ZT-531	MS-31	5%
C11	100	500	1219498	1469-0001	TCZ-100	22R5T1	TCO-100	ZT-531	MS-31	5%
C12	470			BPD-00047	DD-471	5W5T47	ED-470	UC-5347	5GA-T47	
C13	.01	400	6633	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C14	.005	600		BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C15	.015	200	7237719	BPD-015	DD16-153	CUB6S15	ED-015	GEM-6115	4TM-S15	
C16	.1	400	6613	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C17	2000		6352	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C18	100		6371	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C19	.003	1000	6563	P1088N-003	DD16-302	CUB10D3		GEM-1023	10TM-D3	
C20	.47	100	6692	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C21	.007	1600	6567	P1688N-007	DD16-702	CUB16D7		GEM-1627	MB-D7	
C22	.1	200	6690	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C23	.47	100	6692	P288N-47		CUB2P47		GEM-2047	2TM-P47	

① In some versions C5 is two single units, C5A Part #6369 & C5B Part #6366.

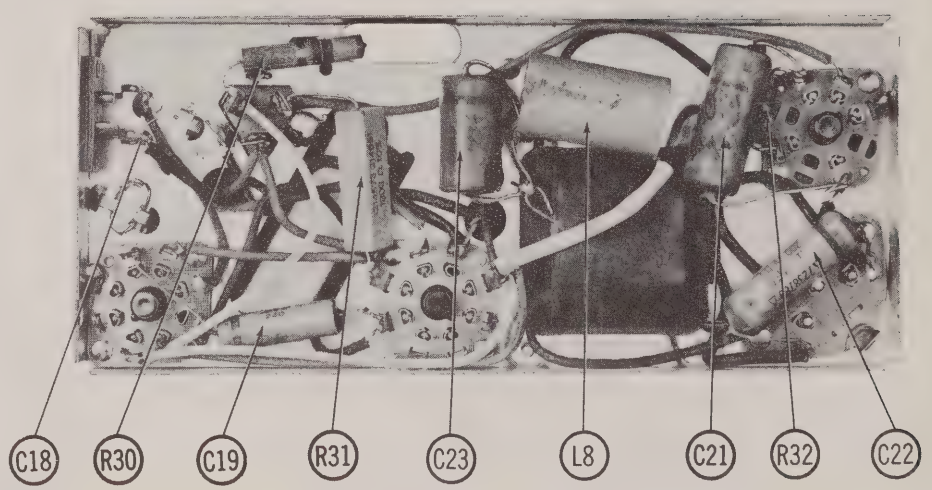
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	7266091			QJ-826A	UE1479S	Tone Volume, Tap② 180K
B	750K							
C	Switch							

POWER CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1	1174	BTA-10K	
R4	1Meg		1235	BTS-1Meg	
R5	100Ω		1113	BTS-100	
R6	330K		1229	BTS-330K	
R7	1.5Meg		1237	BTS-1.5Meg	
R8	22K		1215	BTS-22K	
R9	12K	2	1276	BTB-12K	
R10	10Ω		1101	BTS-10	
R11	150Ω		1115	BTS-150	
R12	47K		1219	BTS-47K	
R13	1Meg		1235	BTS-1Meg	
R14	2.2Meg		1239	BTS-2.2Meg	
R15	47K	1	1259	BTA-47K	
R16	1000Ω		1125	BTS-1000	
R17	3300Ω 5%		1220173	BTS-3300 5%	
R18	100K		1223	BTS-100K	
R19	1000Ω		1219	BTS-1000	
R20	47K			BTS-47K	
R21	1Meg 5%		1220169	BTS-1Meg 5%	
R22	1.5Meg 5%		1219492	BTS-1.5Meg 5%	
R23	5.6Meg		1244	BTS-5.6Meg	
R24	3900Ω	1	1169	BTA-3900	
R25	750Ω 5%		7266320	BTS-750 5%	
R26	120K		1224	BTS-120K	
R27	47K	1	1259	BTA-47K	
R28	10K	1	1174	BTA-10K	
R29	33K 5%	1	7266230	BTA-33K 5%	
R30	360Ω 5%	1	7234563		
R31	1800Ω	3			Note 1
R32	15K	1	1253	BTA-15K	

Note 1. Mfgr. states to replace R31 with 2700Ω 2W(Part #1204) & 5600Ω 1W(Part #1171) connected in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 1.3A	550VCT @ .062A			6067	V3902	P-2861	P-6489	22R52	V-31

TRANSFORMER (AUDIO INPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2			6061		A-3010				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	7100Ω CT	3-4Ω	6063	Z1002 ①	A-2901 ①	A-3823 ①	22S88 ①	S-53X ①	① Use original channel mounting frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	6"X9"	PM	3-4Ω	7266144	69A3	

PARTS LIST & DESCRIPTION (continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coupling Coil	7255738	19-1004	BC-565	4610	6.5 Microhenries
L2	Antenna Coil	7257979				
L3	RF Coil	7257979				
L4	Osc. Coil	7263287				
L5	Input IF	1219508	16-6752	BC-350	12-H1	
L6	Output IF	1220204				
L7	Fil. Choke	7241708				
L8	Vib. Hash Choke	1221077				42 Microhenries

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115∿	8555	6330	G1602/G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	7½A	455640	153-R	30307.5 (7AG 7½A)	155009	SFE 7½A	HRH

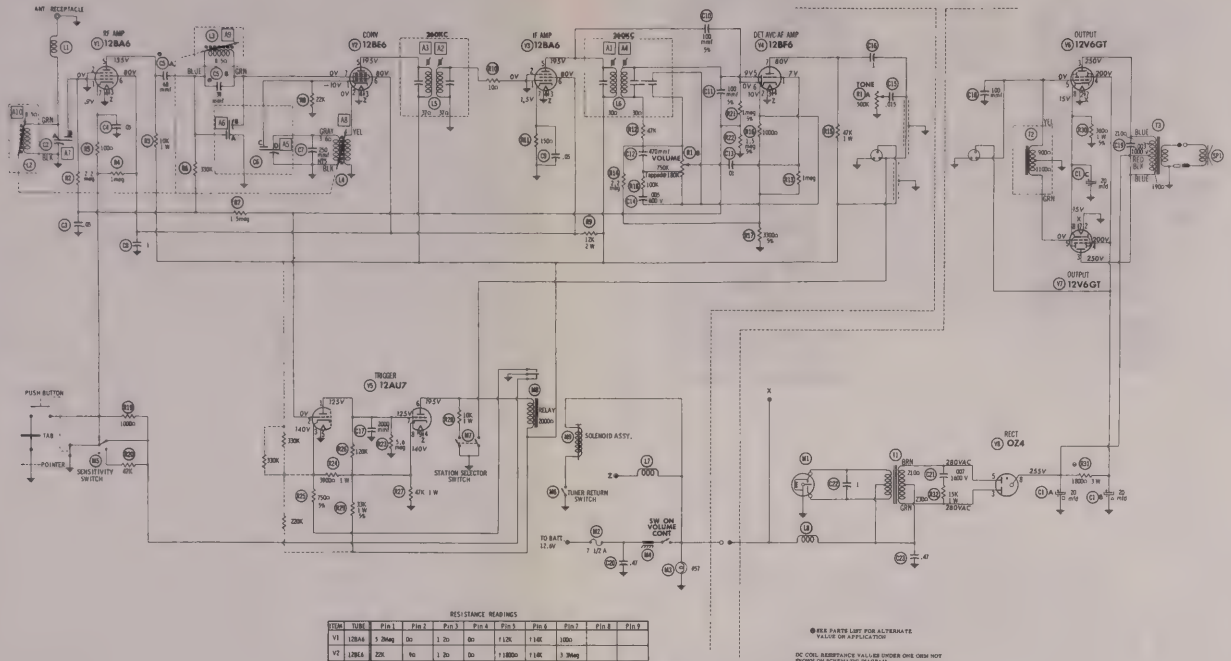
MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Light		#57
M4	Spark Plate	1220308	
M5	Switch	7266086	Sensitivity
M6	Switch	7263340	Tuner Return
M7	Switch	7265300	Station Selector
M8	Relay	1220326	
M9	Solenoid Ass'y.	1220685	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	7270072	Control
Lever	7266329	Tone
Dial Glass	7263586	



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	5.3Meg	0Ω	1.2Ω	0Ω	†12K	†14K	100Ω		
V2	12BE6	22K	9Ω	1.2Ω	0Ω	†1800Ω	†14K	3.3Meg		
V3	12BA6	47Ω	0Ω	1.3Ω	0Ω	†1800Ω	†14K	150Ω		
V4	12BF6	1Meg	4300Ω	0Ω	1.2Ω	68K	†2.5Meg	†50K		
V5	12AU7	†140K	1.5Meg	750Ω	1.2Ω	0Ω	†1800Ω	5.6Meg	47K	6Ω
V6	12V6GT	NC	0Ω	†250Ω	†1800Ω	900Ω	TP	1.2Ω	360Ω	
V7	12V6GT	NC	0Ω	†190Ω	†1800Ω	1100Ω	TP	1.2Ω	360Ω	
V8	0Z4	0Ω	NC	230Ω	NC	230Ω	NC	TP	230Ω min	

† MEASURED FROM PIN 8 OF V8
TP TIE POINT
NC NO CONNECTION

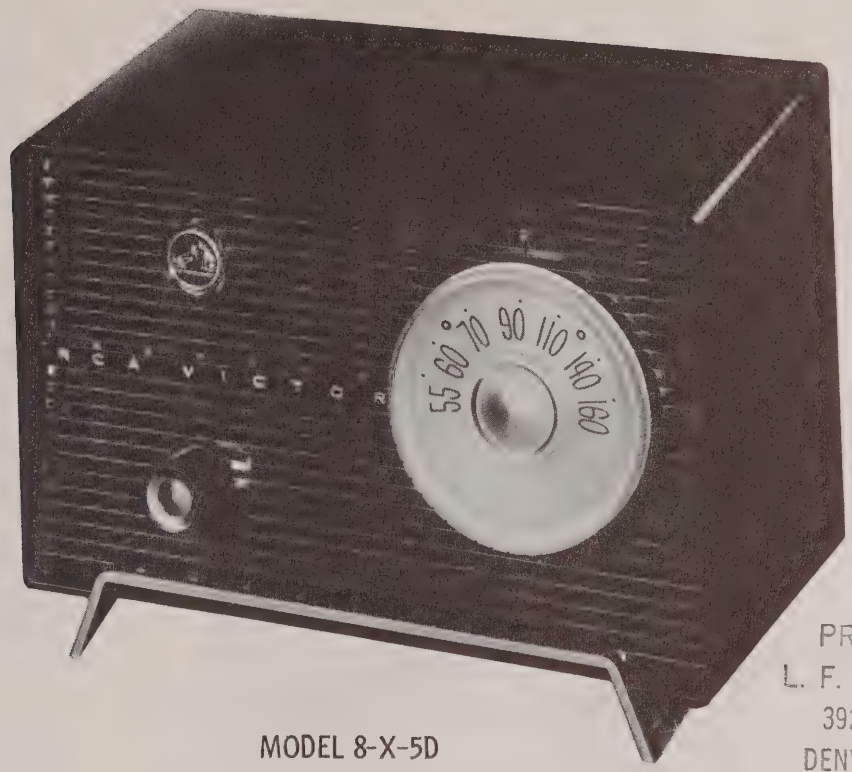
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections shown as bottom views
3. Measured values are from socket pin to common negative
4. Battery voltage maintained at 12.6 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

RCA VICTOR MODELS 8-X-5 Series,
8-X-6 Series, 8-X-51 (Ch. RC-1170, RC-1178)



MODEL 8-X-5D

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR MODELS 8-X-5 Series,
8-X-6 Series, 8-X-51 (Ch. RC-1170, RC-1178)

TRADE NAME	RCA Victor Models 8-X-5D, E, F, H; 8-X-6E, F, J, M; 8-X-51 (Ch. RC-1170, RC-1178)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

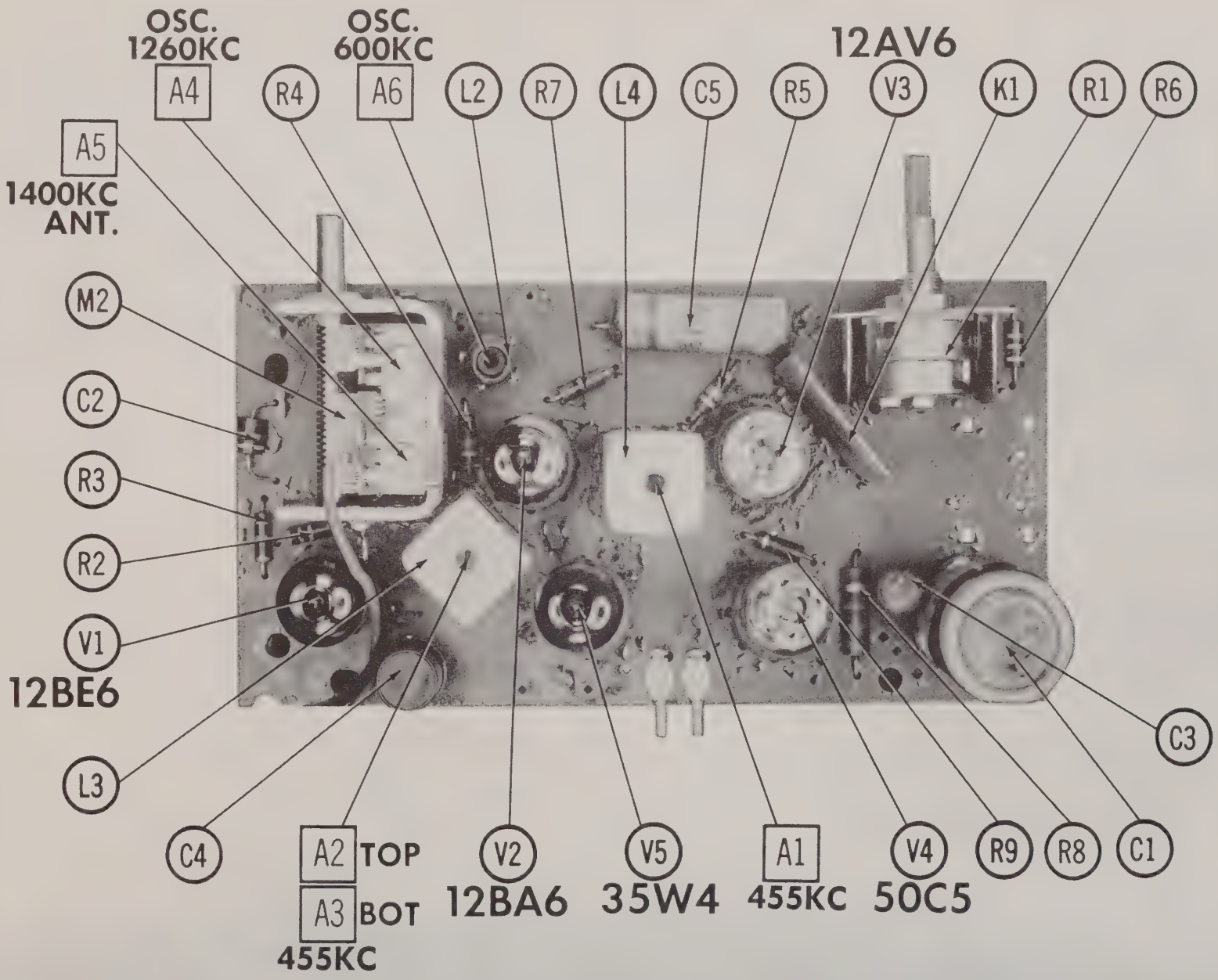
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (grid) of 12BA6 (V2). Low side to B-.	455KC (400~ Mod.)	Quiet point near 1600KC.	Across voice coil.	A1	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	.01MFD	High side to ant. stator lug on tuning gang. Low side to B-.	"	"	"	A2, A3	"
3.		Loop	1620KC	Tuning gang fully open.	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1400KC	Tune to 1400KC signal.	"	A5	"
5.		"	600KC	Tune to 600KC signal.	"	A6	Adjust for maximum output while rocking tuning gang. Repeat steps 3, 4 & 5.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-Amplifier	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA VICTOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	103197	PRS150 V5050	BBRD5515	TCD49		CADP-1550	R2377 *
B	50	150							

* Non catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	56		100085	SI56	D6-560	LT6Q56	GP-56	UC-5456	5GA-Q56	
C3	.012	400	103195					GEM-6112		
C4	.047	400	103239	BPD-05	DF-503	BC6S47J		ACE6147	4SE-S47	
C5	.047	400	73553	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA VICTOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1Meg	½	103208					Volume & Switch ①

① Part #103629 used in 8-X-6 model series.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA VICTOR PART No.	IRC PART No.	
R2	33K		502333	BTS-33K	
R3	100Ω		502110	BTS-100	
R4	3.3Meg		502533	BTS-3.3Meg	
R5	3.3Meg		502533	BTS-3.3Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA VICTOR PART No.	IRC PART No.	
R6	47K		502347	BTS-47K	
R7	100Ω		502110	BTS-100	
R8	1200Ω	1	512212	BTA-1200	
R9	150Ω		502115	BTS-150	

TRANSFORMER (AUDIO OUTPUT)

*ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA VICTOR PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	77993	Z1101 ①	A-3025①	A-3332①	26S58 ①	S-12X①	① Bend Ear Down

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA VICTOR PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	79696	4A07	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		RCA VICTOR PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Antenna	103619				Includes Cabinet Back (8-X-5 Series & Model 8-X-51)
	Loop Antenna	103628				Includes Cabinet Back (8-X-6 Series).
L2	Osc. Coil	103204				
L3	Input IF	103206				
L4	Output IF	103207	16-6780	BC-357	13-PC1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA VICTOR PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	5000MMF, 220MMF, 5000MMF, 125MMF, 250MMF, 6.8Meg, 470K, 470K	103205	

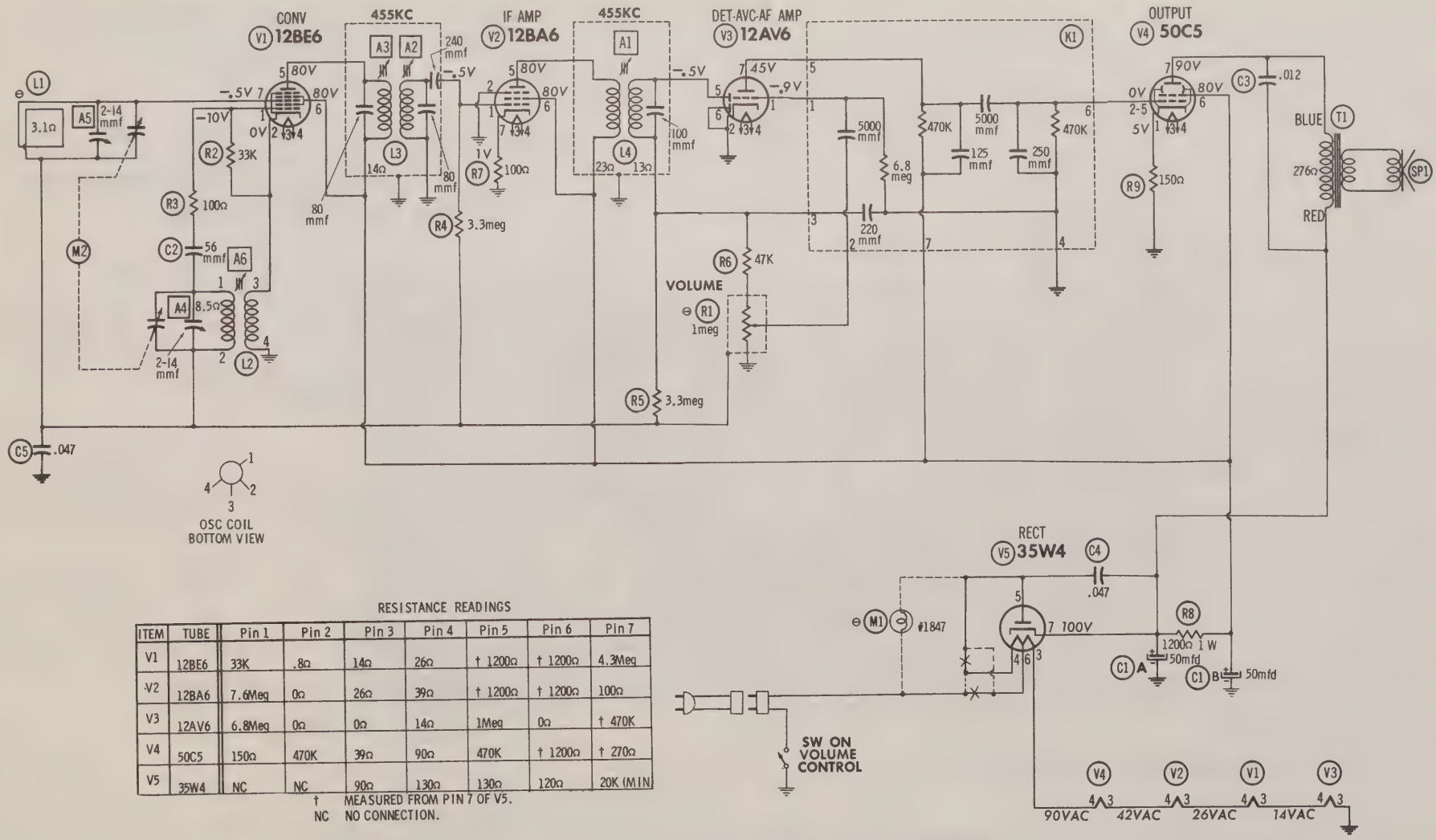
MISCELLANEOUS

ITEM No.	PART NAME	RCA VICTOR PART No.	NOTES
M1	Dial Light	103211	#1847 (8-X-6 Series Only)
M2	Tuning Cap.	103209	2 Gang (Ant. 22-410MMF)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Printed Panel	961926-1	
Knob	103625	Tuning, 8-X-5 Series
Knob	103730	Tuning, Model 8-X-51
Knob	103627	Tuning, 8-X-6 Series
Knob	103622	On-Off-Volume, Model 8-X-5E
Knob	103621	On-Off-Volume, Model 8-X-5D
Knob	103623	On-Off-Volume, Model 8-X-5H
Knob	103624	On-Off-Volume, Model 8-X-5F
Knob	103729	On-Off-Volume, Model 8-X-51
Knob	103631	On-Off-Volume, Model 8-X-6E
Knob	103633	On-Off-Volume, Model 8-X-6M
Knob	103630	On-Off-Volume, Model 8-X-6J
Knob	103632	On-Off-Volume, Model 8-X-6F
Cabinet	Y4091	White, Model 8-X-5E
Cabinet	Y4090	Black, Model 8-X-5D
Cabinet	Y4092	Green, Model 8-X-5H
Cabinet	Y4093	Pink, Model 8-X-5F
Cabinet	Y4112	Maroon, Model 8-X-51
Cabinet	Y4078	White, Model 8-X-6E
Cabinet	Y4080	Yellow, Model 8-X-6M
Cabinet	Y4077	Grey, Model 8-X-6J
Cabinet	Y4079	Pink, Model 8-X-6F



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	33K	.8Ω	14Ω	26Ω	† 1200Ω	† 1200Ω	4.3Meg
V2	12BA6	7.6Meg	0Ω	26Ω	39Ω	† 1200Ω	† 1200Ω	100Ω
V3	12AV6	6.8Meg	0Ω	0Ω	14Ω	1Meg	0Ω	† 470K
V4	50C5	150Ω	470K	39Ω	90Ω	470K	† 1200Ω	† 270Ω
V5	35W4	NC	NC	90Ω	130Ω	130Ω	120Ω	20K (MIN

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

Ⓔ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

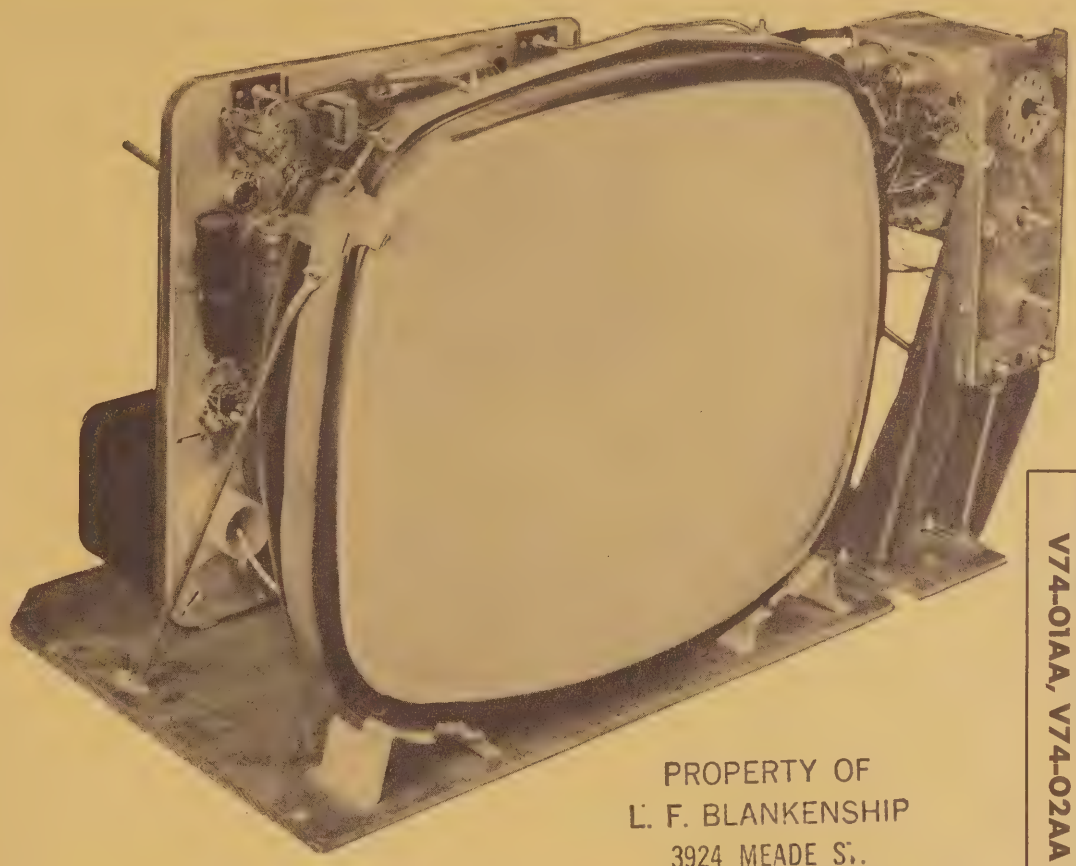
*TRADE MARK

SENTINEL CHASSIS U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete volume* of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SENTINEL CHASSIS U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series)

TRADE NAME	Sentinel Chassis U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series)
MANUFACTURER	Sentinel Radio Co., Fort Wayne 4, Indiana
TYPE SET	Television Receiver
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 145 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 6
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions 12, 13, 14
Photographs
- Capacitor & Alignment Identification 4, 9
- Chassis-Rear View 11
- Chassis-Top 7
- RF Tuner 14, 15, 16

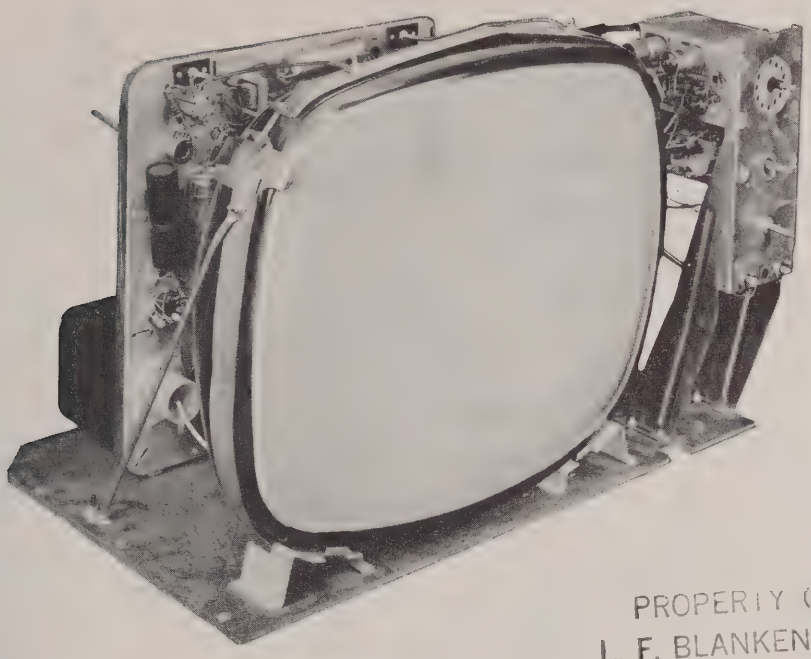
Photographs (Con't)
- Resistor & Inductor Identification 5, 8

Resistance Measurements 10
Servicing in the Field 1
Schematic 2
Tube Failure Check Chart 3
Tube Placement Chart (Bottom View) 10
Tube Placement Chart (Top View) 3

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

SENTINEL CHASSIS U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series)



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 1 or 6 and 10. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSES

A 7.5Ω fusible resistor (R89) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

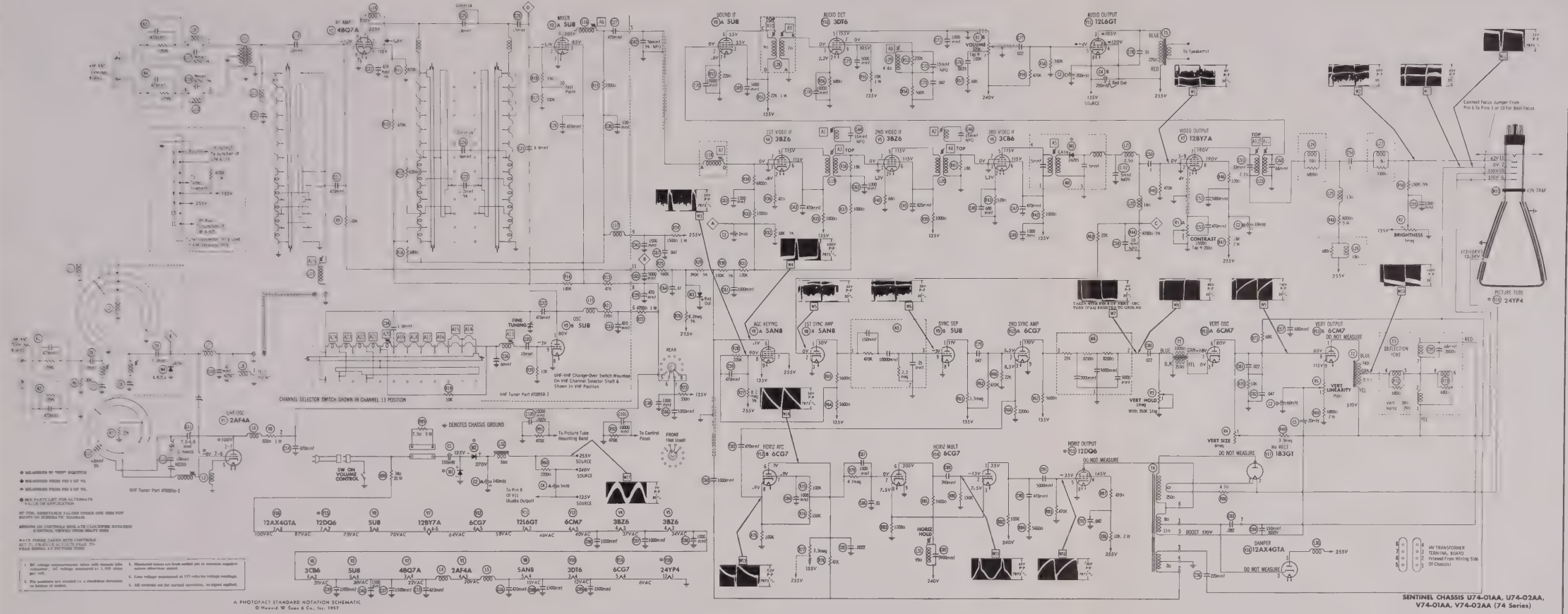
SENTINEL CHASSIS U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

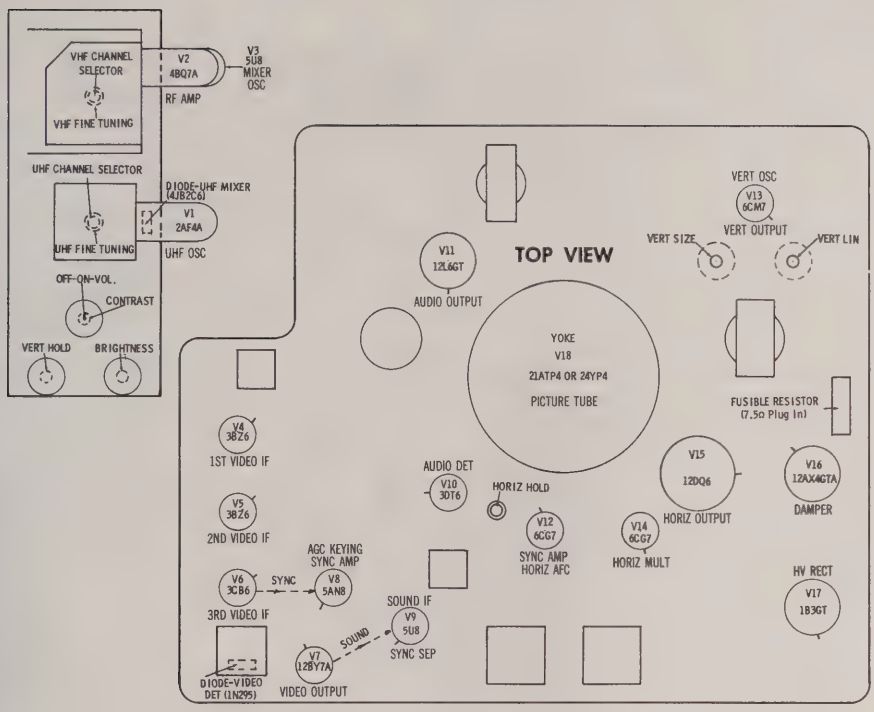
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

G914

DATE 8-57 SET 368 FOLDER 12


SENTINEL CHASSIS U74-01AA, U74-02AA, V74-01AA, V74-02AA (74 Series)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part #10058-2
UHF Tuner Part #10056-2
DENOTES CHASSIS GROUND
PICTURE TUBE 24YP4
ION TRAP
DEFLECTION YOKE
SW ON VOLUME CONTROL
FINE TUNING
CONTRAST
BRIGHTNESS
VERT HOLD
VERT SIZE
VERT LINEARITY
HORIZ HOLD
BOOST 370V
DAMPER V18 12AX4GTA
DO NOT MEASURE
HV TRANSFORMER TERMINAL BOARD Viewed From Wiring Side Of Chassis
RF AMP V2 48Q7A
MIXER V3 5U8
OSC V5 5U8
UHF OSC V1 2AF4A
SOUND IF V4 5U8
AUDIO DET V10 3DT6
AUDIO OUTPUT V11 12L6GT
1ST VIDEO IF V4 3BZ6
2ND VIDEO IF V5 3BZ6
3RD VIDEO IF V6 3CB6
VIDEO OUTPUT V7 12BY7A
AGC KEYING V9 A 5AN8
1ST SYNC AMP V8 B 5AN8
SYNC SEP V9 B 5U8
2ND SYNC AMP V13 A 6CG7
VERT OSC V13 A 6CM7
VERT OUTPUT V12 B 6CM7
HORIZ AFC V12 B 6CG7
HORIZ MULT V14 6CG7
HORIZ OUTPUT V15 12DQ6
VERT SIZE SYNC V11 1B3GT
V18 12AX4GTA 12DQ6 V17 5U8 V16 12BY7A V15 6CG7 V14 12L6GT V13 6CM7 V12 3BZ6 V11 3BZ6
100VAC 87VAC 75VAC 70VAC 64VAC 58VAC 40VAC 40VAC 37VAC 34VAC
V18 3CB6 V17 5U8 V16 48Q7A V15 2AF4A V14 5AN8 V13 3DT6 V12 6CG7 V11 24YP4
37VAC 20VAC 150B 22VAC 20VAC 15VAC 12VAC 6VAC
1. DC voltage measurements taken with electronic tube voltmeter, 20K ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated.
3. All controls set for normal operation, no signal applied.
4. Line voltage maintained at 117 volts for voltage readings.
5. This numbers are counted in a clockwise direction as human of socket.
6. WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE A VERTICAL BAR TEST PATTERN SIGNAL AT PICTURE TUBE
WAVEFORMS BY "TEST" POSITION
WAVEFORMS FROM PIN 1 OF V2.
WAVEFORMS FROM PIN 6 OF V2.
ALL PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE FALLS WITHIN ONE OHM NOW SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
Connect Focus Jumper From Pin 6 To Pins 1 or 10 For Best Focus
To Speakers
To Picture Tube Mounting Band
To Control Panel
To Pin 8 Of V11 (Audio Output)
To Junction Of CR6 & L15
To Junction Of R1 & R2
To Junction Of R4 & R5
To Junction Of R6 & R7
To Junction Of R8 & R9
To Junction Of R10 & R11
To Junction Of R12 & R13
To Junction Of R14 & R15
To Junction Of

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

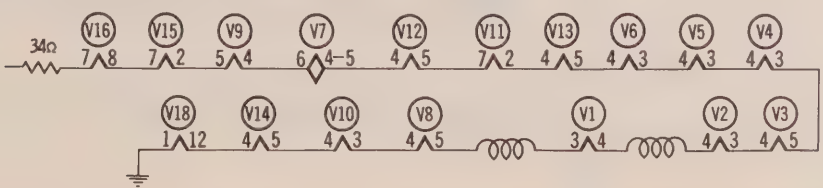
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R89), Rectifiers (M1, M2)**

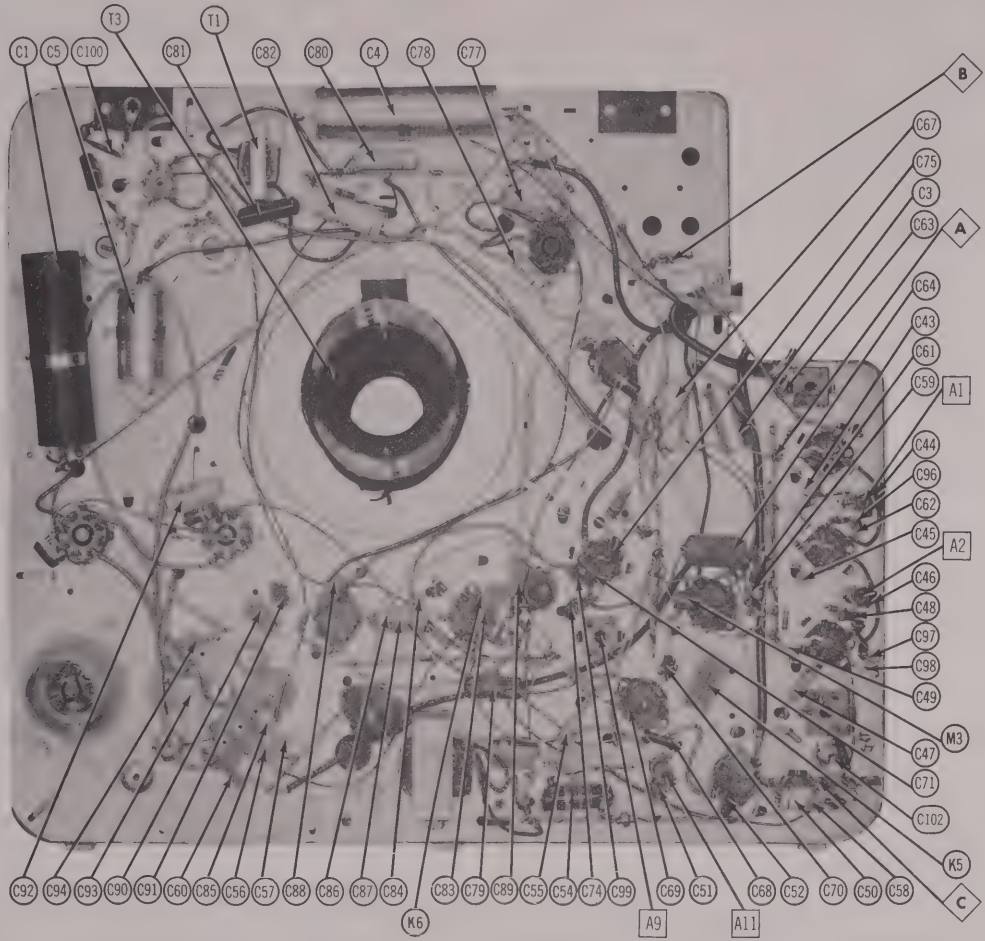
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V4, V5, V6, Diode (M5), V7, V11**
No pic, no sound, has snow - **V2, V3, V4 (V1 UHF only)**
No pic, has sound, has raster - **V7, V18**
Has pic, no sound - **V9, V10, V11**
Overloaded picture - **V8, Diode (M3), V11**

SYNC FAILURE
No vert. sync - **V8, V9, V12, V11**
No horiz. sync - **V8, V9, V12, V11**
No vert. or horiz. sync - **V8, V9, V12, V11**

SWEEP FAILURE
No raster, has sound - **V12, V14, V15, V16, V17, V18**
No vertical deflection - **V13**
Poor vert. linearity or foldover - **V13**
Poor horiz. linearity or foldover - **V14, V15, V16**
Narrow picture - **V14, V15, V16, M1, M2**
Vert. off freq. - **V13**
Horiz. off freq. - **V14**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Turn contrast control fully counter clockwise.
Connect the negative lead of a 3 volt bias supply to point Ⓐ Ⓑ. Positive to chassis.
Connect the negative lead of a 1.5 volt bias supply to point Ⓐ Ⓑ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	50Ω Carbon Resistor	High side to pin 1 (grid) of 3BZ6 (V4). Low side to chassis.	43.0MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru 15K to point Ⓒ. Low side to chassis.	A1	Adjust to place marker in trap notch.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	42.75MC 45.25MC 45.75MC	"	"	A3, A4, A5	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Repeat steps 1 and 2.
4.	"	High side to point Ⓓ. Low side to chassis.	"	42.75MC 43.0MC 44.25MC 45.0MC 45.75MC	"	"	A6, A7	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.

SOUND IF ALIGNMENT

1. Tune in a strong TV signal and adjust A8 for maximum sound and MINIMUM distortion.
2. Reduce the signal input by removing the antenna or connecting an adjustable attenuator between the antenna lead and the antenna terminals so that with the volume control set at maximum, the sound is barely audible. Adjust A9 for MINIMUM distortion and clearest sound.
3. With the same weak signal input, adjust A10 and A11 for MINIMUM distortion and clearest sound. Adjust A12 for MINIMUM 4.5MC beat in the picture.
4. Reduce the signal input further until hiss is heard in the sound and retouch A9 for MINIMUM noise and clearest sound.

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Fig. 3	Across VHF antenna terminals	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓒ. Low side to chassis.	A13	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A14	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A15	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A16	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A17	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A18	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A19	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A20	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A21	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A22	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A23	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A24	

UHF IF ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	1000Ω	High side to point Ⓔ. Low side to tuner chassis.	43.0MC (10MC Swp)	42.75MC 45.75MC	UHF	Vert. Amp. thru 15K to point Ⓒ. Low side to chassis.	A25	Adjust for maximum gain and MINIMUM tilt of response similar to Fig. 2.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

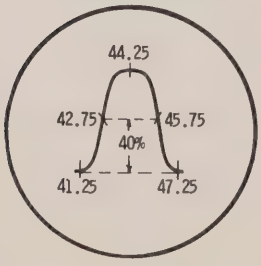


FIG. 1

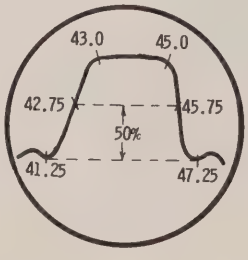


FIG. 2

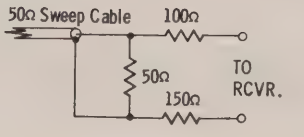


FIG. 3

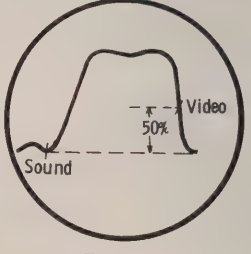
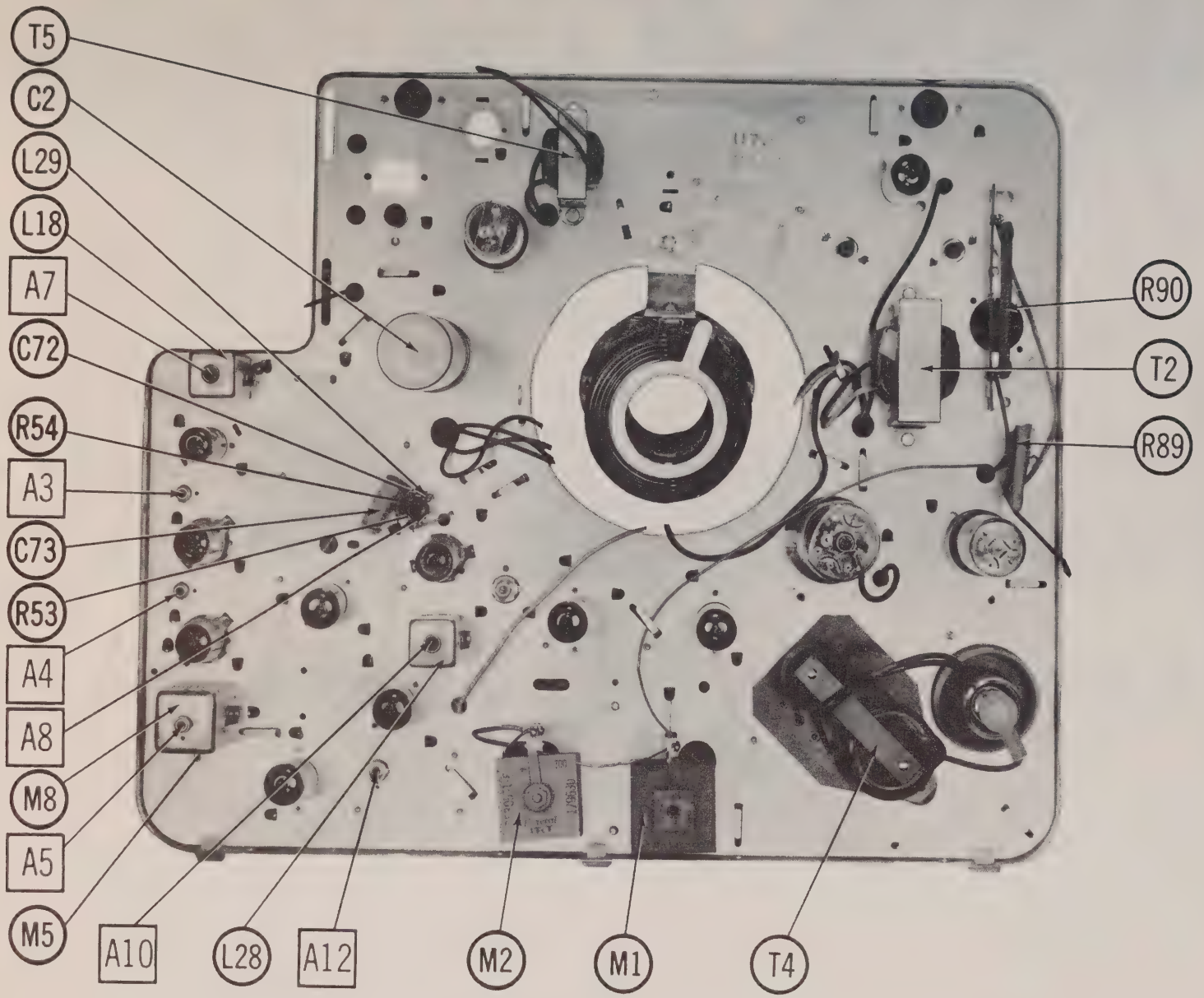
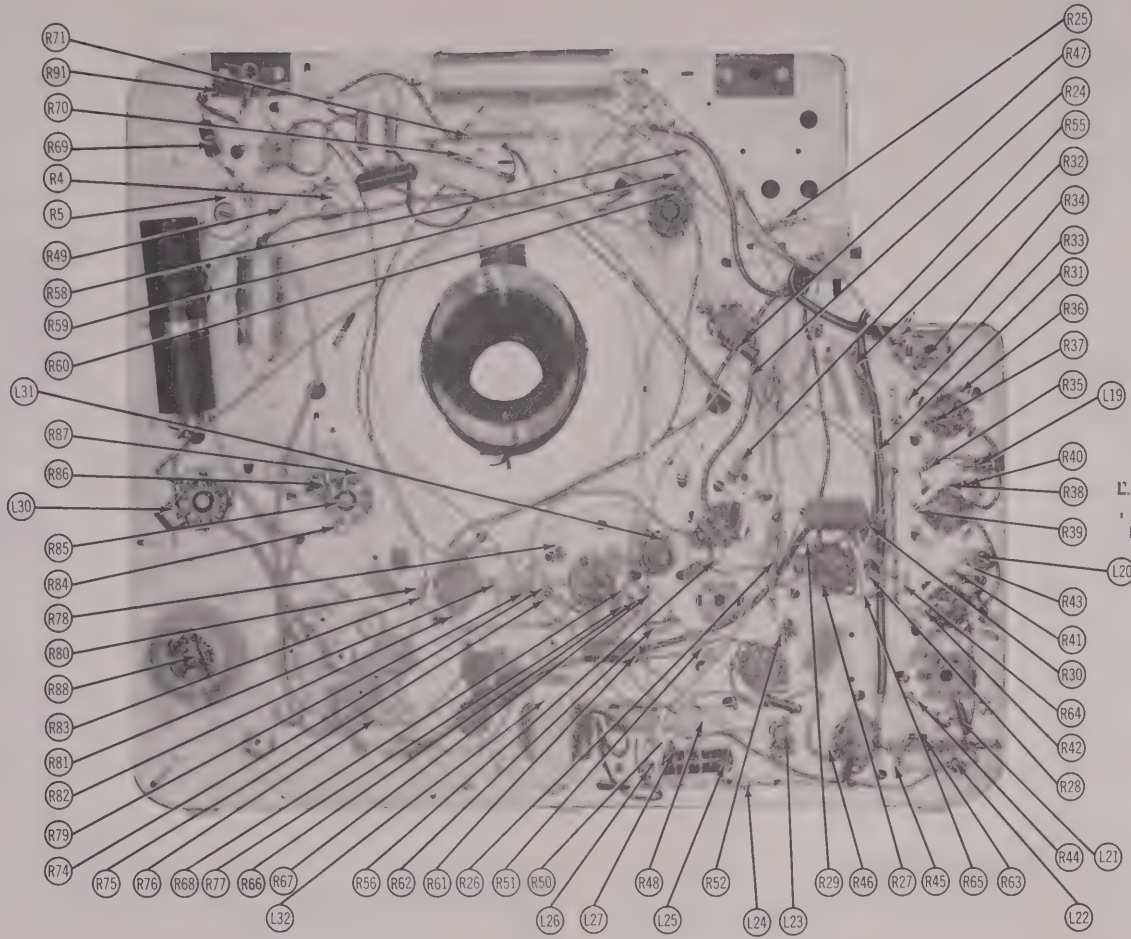


FIG. 4



CHASSIS TOP VIEW

SENTINEL CHASSIS U74-01AA, U74-02AA,
V74-01AA, V74-02AA (74 Series)

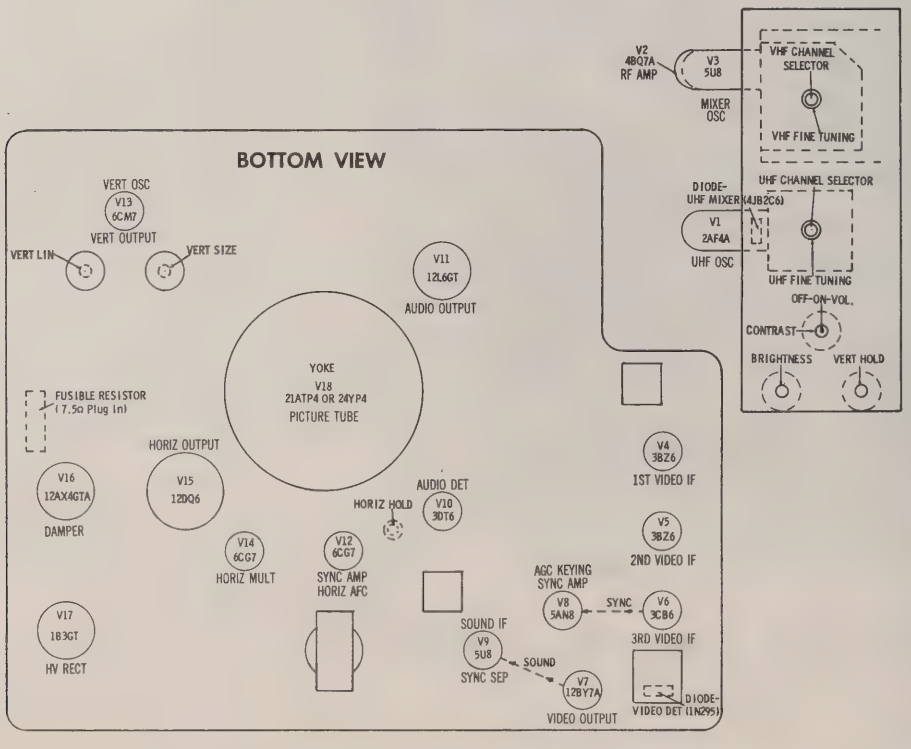


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

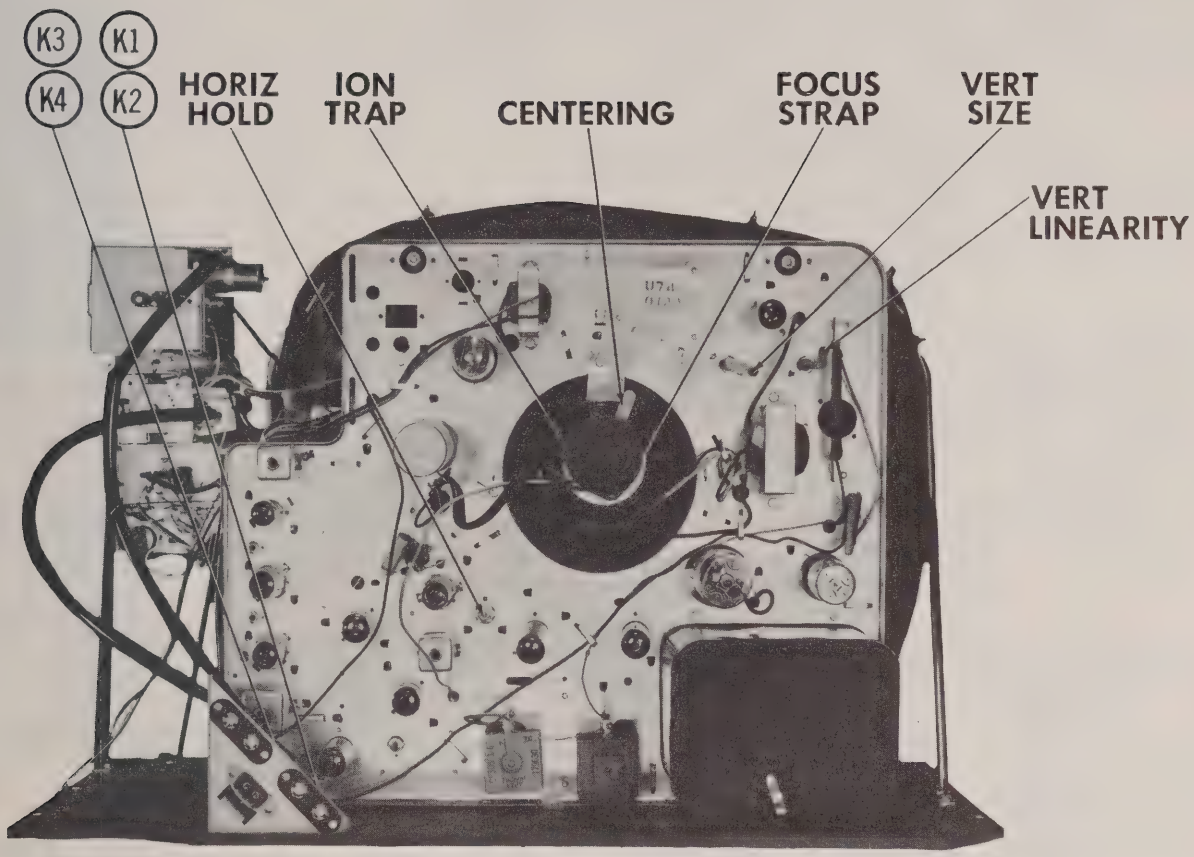
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2AF4A	▪* 1200Ω	22K	5Ω	5.5Ω	1.1Ω	22K	▪* 1200Ω		
V2	4BQ7A	† 1500Ω	230K	INF	5.5Ω	6.5Ω	INF	600K	0Ω	0Ω
V3	5U8	▪ 5100Ω	360K	▪ 47K	6.5Ω	7.5Ω	† 4800Ω	0Ω	0Ω	10K
V4	3BZ6	75K	47Ω	9Ω	10Ω	▪ 1000Ω	▪ 1000Ω	0Ω		
V5	3BZ6	69K	68Ω	8Ω	9Ω	▪ 1000Ω	▪ 1000Ω	0Ω		
V6	3CB6	.1Ω	120Ω	7.5Ω	8Ω	▪ 1000Ω	▪ 1000Ω	0Ω		
V7	12BY7A	• 200Ω	470K	0Ω	15Ω	15Ω	16Ω	† 4000Ω	† 18K	0Ω
V8	5AN8	▪ 11K	27K	0Ω	4Ω	5Ω	160K	† 56Ω	▪ 200K	▪ 0Ω
V9	5U8	▪ 1.5Meg	.8Ω	▪ 22K	16Ω	17Ω	▪ 22K	220Ω	0Ω	2.2Meg
V10	3DT6	7Ω	680Ω	4Ω	3Ω	▪ 320K	▪ 10K	560K		
V11	12L6GT	NC	11Ω	† 275Ω	† 56Ω	260K	TP	13Ω	¶	
V12	6CG7	▪ 5600Ω	22K	2200Ω	15Ω	13Ω	40K	350K	100K	0Ω
V13	6CM7	‡ 750Ω	NC	210Ω	11Ω	10Ω	• ‡ 5Meg	• 550K	• ‡ 5Meg	7500Ω
V14	6CG7	† 100K	150K	1200Ω	1.5Ω	3Ω	† 5900Ω	4.9Meg	1200Ω	0Ω
V15	12DQ6	TP	17Ω	TP	† 10K	470K	TP	21Ω	0Ω	TOP CAP ‡ 8Ω
V16	12AX4GTA	NC	NC	¶	NC	† 56Ω	TP	23Ω	21Ω	
V17	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡ 258Ω
V18	24YP4	0Ω	78K	PIN 6 ‡ 11Ω	PIN 10 ‡ 11Ω	PIN 11 • 550K	PIN 12 1.5Ω			

* MEASURED IN "UHF" POSITION.
▪ MEASURED FROM 135V SOURCE.
† MEASURED FROM OUTPUT OF M2.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 3 OF V16.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Set the brightness and contrast controls for a normal picture.

3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Osc.	2A5/4A	
V2	IF Amplifier	6BQ7A	
V3	Mixer-Osc.	5U8	
V4	1st. Video IF Amp.	3D26	
V5	2nd. Video IF Amp.	3D26	
V6	3rd. Video IF Amp.	3C26	
V7	Video Output	12BY7A	
V8	1st. Sync Amplifier	5AN8	
V9	Sound IF Amp. -Sync Sep.	9U8	
V10	Audio Det.	3DT6	
V11	Audio Output	2L6GT	
V12	2nd. Sync Amp. - Horiz. AFC	6CG7	
V13	Vert Osc.-Vert Output	6CM7	
V14	Horiz. Mult.	6CG7	
V15	Horiz. Output	12DQ6	Note 1
V16	Damper	1A3/6CT4	
V17	HV Rectifier	1B3GT	

Note 1. Some versions may use a 12DQ6A.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			
	SENTINEL PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V18	24SP4	24SV4 ①	24TP4 ②	① Aluminized
			24DP4 ③	② Silver Screen "85"
			24AP4 ④	
	21ATP4	21ATP4A	21ATP4 ②	
			21ATP4A ③	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP	RATING VOLT*	REPLACEMENT DATA SENTINEL PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.	NOTES
C1	.05	30	270551--	AFH1-24	CN1-24	FP31	TMS-25	S-105	TVL-1429	
C2A	40	300	270554--	AFH24-47-60		FP3328-74		Q-161	R231 *	
B	40	300				TC4920		MTD-4540		
C	200	50								
D	80	50								
C3	2	50	270027-22	PR50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301	
C4A	5	350	270558-1	PR2-100	BOB8	TC401	TD-5-350	D-088	TVA-2457	
B	200	50				TCD2255				
C5	20	500	270552-1	PR500V20	BB2050	TC63	TD-20-500	S-315	TVA-1908	

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	1.2		250231-125	MP0-811 0	TCS-1		TCO-1.2		STCCB-V1	
C7			250168-10							
C8			250168-10							
C9	1.0		250231-104	MP0-S1 1	TCS-1		TCO-1		STCCB-V1	
C10	47		250175-21	N750-S1 47	TCN-47	CI0Q4TU	TCT-47	NT-5447	STCU-Q47	N750 5%
C11	2.2-4		250220-2		6S9-4		31S-E			
C12	62		250222-106							5%
C13	2.2		250668-00							N2200
C14	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C15	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C16	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C17	39		250175-20	N750-S1 39	TCN-39	CI0Q3SU	TCT-39			N750 5%
C18	39		250175-20	N750-S1 39	TCN-39	CI0Q3SU	TCT-39			N750 5%
C19	10		250231-137	MP0-S1 10	TCS-10	LT8Q3	TCO-10	ZT-S31	STCC-Q1	
C20			250168-10							
C21	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C22	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	5%
C23	470		250231-125	MP0-811 2	TCS-1		TCO-1.2		STCCB-V1	5%
C24	56		250168-6							
C25	18		250168-4							
C26	15		250307-5	MP0-S1 15	TCS-15	LT8Q15	ED-15	UC-5415	STCC-Q15	
C27	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C28	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C29	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C30	6.8		250231-125	MP0-S1 6.8	TCS-6R8	CI6Y8BC	TCO-6.8	ST-5368	STCCB-V68	
C31	470		250175-8	B300D47	DD-47I	BYA10T4I	ED-470	UC-5347	SGA-T47	
C32	470		250175-8	B300D47	DD-47I	BYA10T4I	ED 470	UC-5347	SGA-T47	
C34	1.0		250068-104	MP0-S1 1.0	TCZ-1		TCO-1		STCCB-V1	
C35	10		250068-138	MP0-811 0	TCS-10	LT8Q3	TCO-10	ZT-841	STCC-Q1	
C36	6		250068-1							
C37	1800		250175-10	BYA10D15	DD-152	BYA10D15	ED-0015	DC5215	S6K-D15	
C38	1000		250175-14	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C39	1500		250175-20	BYA10D15	DD-152	BYA10D15	ED-0015	DC5215	S6K-D15	
C40	1500		250175-8	B300D15	DD-152	BYA10D15	ED-0015	DC5215	S6K-D15	
C41	1000		250175-22	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C42	56		250175-50	MP0-S1 56	TCZ-56	CI0Q5BC	TCZ-56			NP0 5%
C43	470		250307-50	S1 470	D6 47I	LT8T47	ED-470	UC-5347	SGA-T47	
C44	56		250068-148	MP0-S1 15	TCZ-15	CI0Q5BC	TCZ-15		STCC-Q15	NP0
C45	820		250175-28		DD-821	LI0T82	ED-820		SGA-T82	
C46	18		250068-148	MP0-S1 15	TCZ-15	CI0Q5BC	TCZ-15		STCC-Q15	NP0
C47	470		250159-1090	1456-00047		UR3T47	ED-470	UC-5347	SGA-T47	
C48	680		250307-51	S1 680	D6-681	LT8T68	ED-680	UC-5368	SGA-T68	
C49	1000		250175-14	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C50	.1	200	250302-18	P288N-1	DF-104	CUB2P1		GEM-201	ZTM-P1	
C51	33		250307-33	S1 33	D6-33I	LT8Q33	ED-33	UC-5433	SGA-Q33	
C52	5000		250175-1	B300D15	DD-502	BYA10D5	ED-005	DC535	S6K-D5	
C53	470		250307-50	S1 470	D6 47I	LT8T47	ED-470	UC-5347	SGA-T47	
C54	.1	600	250211-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C55	1000		250175-14	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C56	330		250175-20	B300D47	DD-331	LI0T33	ED-330	UC-5333	SGA-T22	
C57	680		250175-36	B300D68	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	
C58	56		250068-155	MP0-S1 10	TCZ-10	CI0Q5C	TCZ-10	ZT-541	STCC-Q1	NP0
C59	470		250307-50	S1 470	D6-47I	LT8T47	ED-470	UC-5347	SGA-T47	
C60	1000		250307-53	S1 1000	D6-102	BYA8DI	ED-1000	DC521	S6K-D1	
C61	1000		250307-53	S1 1000	D6-103	BYA8DI	ED-1000	DC521	S6K-D1	
C62	1000		250175-14	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C63	1000		250175-14	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C64	.47	100	250172-1	P288N-47		CUB2P47		GEM-2047	ZTM-P47	
C65	5000		250175-1	B300D15	DD-502	BYA10D5	ED-005	DC535	S6K-D5	
C66	1000		250175-14	B300D47	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C67	.047	600	250211-47	P503-S1	DF-503	CUB4P47		GEM-4147	4TM-S47	
C68	68		250068-147	S1 68	D6-680	LT8Q68	ED-68		SGA-Q68	
C69	5000		250175-1	B300D15	DD-502	BYA10D5	ED-005	DC535	S6K-D5	
C70	1000		250175-2	B300D47	DD-103	BYA8DI	ED-01	DC521	S6K-D1	
C71	1000		250307-52	S1 1000	D6-102	BYA8DI	ED-1000	DC521	S6K-D1	
C72	.15		250302-18	P288N-15	DF-154	CUB2P15	TC-15	GEM-2147	ZTM-S47	
C73	.047	200	250302-11	P503-05	DF-503	CUB4P47		GEM-4147	4TM-S47	

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C74	10000		250175-2	BPD-01	DD-103	BYA8DI	ED-01	DC51	S6K-01	
C75	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	S6K-D5	
C76	.0033	400	250211-4	BPD-0033	DS-332	CUB4D33	ED-0033	GEM-4323	4TM-I33	
C77	.022	400	250211-9	BPD-02	DF-203	CUB4S22	ED-02	GEM-4223	4TM-S22	
C78	.01	400	250211-7	BPD-01	DD-103	CUB4E	ED-01	GEM 411	4TM-S1	
C79	.047	400	250211-13	BPD-05	DF-503	CUB4P47		GEM-4147	4TM-S47	
C80	.022	400	250211-9	BPD-02	DF-203	CUB4S22	ED-02	GEM-4222	4TM-S22	
C81	.022	200	250211-9	BPD-02	DF-203	CUB4S22	ED-02	GEM-2122	4TM-S22	
C82	.047	400	250211-13	BPD-05	DF 503	CUB4P47		GEM-4147	4TM-S47	
C83	470		252207-50	SI 470	D6-47I	BYA10T4I	ED-470	UC 5347	SuA-T47	
C84	1000		250175-14	BPD-001	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C85	.0022	400	250211-3	BPD-0022	DS-222	CUB4D22	ED-0022	GEM-4222	4TM-D22	
C86	.01	400	250211-7	BPD-01	DD-103	CUB4E	ED-01	GEM-411	4TM-S1	
C87	.000		250175-14	BPD-001	DD-102	BYA8DI	ED-1000	DC521	S6K-D1	
C88	240		250159-1089	1464-00039		1R5T39			MS 339	
C89	3900		250159-1073	1464-00019		5R5D39			MS-239	
C90	470		250159-1080	1464-00047		1R5T47			MS-347	
C92	1000		250175-1	BPD-001	DD-502	BYA10D5	ED-005	DC525	S6K-D5	
C93	.047	400	250211-11	P288N-68	DF-503	CUB4S47		GEM-4147	4TM-S47	
C94	.082	300	250213-17	P288N-68		CUB2S8		GEM-218	2TM-S8	
C95	.100	3000	250175-42	BYD-30-150	DD50-151	BYD30T15			30GAB-T15	
C96	68	2000	250175-23	BYD-20-68	DD50-680	BYA20Q68		DC30468		
C98	1000		250175-14	BPD-001	DD-103		ED-1000	DC521	S6K-D1	
C97	1000		250175-14	BPD-001	DD-102		ED-1000	DC521	S6K-D1	
C99	1000		250175-14	BPD-001	DD-102		ED-1000	DC521	S6K-D1	
C99A	(500 + 1500)		250218-9	BPD-2X0015	DDH-152	BYC5DD15	EDH-0015	DCD5215	S6K-D215	
C100	10000	1000	250218-2							
C101	10000		250175-3	BPD-01	DD-103	BYA8DI	ED-01	DC511	S6K-01	
C103	5									N470

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SENTINEL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	½	2208532					Contrast Tap@ 200Ω
B	320K	½						Volume Tap@ 100K
C	Switch	½						Attach to R1B
R2A	5Meg	½	2208554-1	B-5T	A47-5Meg-S	QU-141	TA56R	Brightness
B	Shaft	½		Not Req.	KS5-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	½	2208552-1	B-5S +	A47-500K-T+	QU-139 *	TA55L +	Vert size
B	Shaft	½		Not Req.	KS5-3	Not Req.	Not Req.	Attach to R3A
R4A	5Meg	½	2208556-3					Vert Lin.
B	Shaft	½	2208554-2				PTA7EL	Attach to R5A
R5A	750Ω	½						
B	Shaft	½						Attach to R5A

* Use a 470K resistor in series with the right hand terminal.
* Use a 330K resistor in series with the right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SENTINEL PART No.	IRC PART No.	NOTES
R6	100K		2301-04-88	BTS-100K	
R7	22K		2301-04-78	BTS-22K	
R8	220Ω	1	2301-45-81	BTA-220	
R9	100K		2301-04-88	BTS-100K	
R10	470K		2301-04-94	BTS-470K	
R11	470K		2301-04-94	BTS-470K	
R12	820Ω		2301-04-73	BTS-820Ω	
R13	47K		2301-04-87	BTS-47K	
R14	180K		2301-04-89	BTS-180K	
R15	330K		2301-04-92	BTS-330K	
R16	68Ω		2301-04-60	BTS-68Ω	
R17	330K		2301-04-92	BTS-330K	
R18	33K		2301-04-77	BTS-33K	
R19	10K		2301-04-74	BTS-10K	
R20	10K		2301-04-74	BTS-10K	
R21	150Ω		2301-04-52	BTS-150	
R22	4700Ω	1	2301-04-75	BTA-4700	
R23	330Ω		2301-04-56	BTS-330	
R24	1500Ω	1	2301-05-54	BTA-1500	
R25	560K		2301-04-91	BTS-560K	
R28	8.2Meg		2309-04-353	BTS-8.2Meg 5%	
R27	6.2Meg		2309-04-253	BTS-6.2Meg 5%	
R28	220K		2301-04-90	BTS-220K	
R29	390K 5%		2309-04-231	BTS-390K 5%	
R30	100K 5%		2309-04-201		
R31	47K		2301-04-87		
R32	68K 5%		2309-04-303	BTS-68K 5%	
R33	1000Ω		2309-04-13	BTS-1000	
R34	6800Ω		2309-04-72	BTS-6800	
R35	1000Ω		2309-04-13	BTS-1000	
R36	47Ω		2309-04-48	BTS-47	
R37	1000Ω		2309-04-13		
R38	18K		2309-04-77	BTS-18K	
R39	1000Ω		2309-04-13	BTS-1000	
R40	68Ω		2309-04-48	BTS-68	
R41	18K		2309-04-77	BTS-18K	
R42	1000Ω		2309-04-13	BTS-1000	
R43	120Ω		2309-04-51	BTS-120	
R44	47000 5%		2309-04-475	BTS-47000 5%	
R45	470K		2309-04-94	BTS-470K	
R46	120Ω		2309-04-51	BTS-120	
R47	18K	2	2301-06-77	BTB-18K	
R48	4000Ω	5	2400-71-19	PW3-4000	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SENTINEL PART No.	IRC PART No.	NOTES
R49	3.3Meg		2309-04-34	BTS-3.3Meg	
R50	150K 5%			BTS-150K 5%	
R51	33K	1	2300-05-78	BTA-22K	
R52	220Ω		2301-04-54	BTS-220	
R53	220K		2309-04-90	BTS-220K	
R54	560K		2309-04-95	BTS-560K	
R55	10K	1	2300-05-74	BTA-10K	
R56	680K		2309-04-96	BTS-680K	
R57	68K		2309-04-84	BTS-68K	
R58	560K			BTS-560K	
R59	470K		2309-04-94	BTS-470K	
R60	1200Ω		2309-04-55	BTS-220K	
R61	1.5Meg		2309-04-32	BTS-1.5Meg	
R62	470K		2309-04-94	BTS-470K	
R63	22K		2309-04-78	BTS-22K	
R64	5600Ω		2309-04-71	BTS-5600	
R65	56000Ω		2309-04-75	BTS-56000	
R66	22K		2309-04-78	BTS-22K	
R67	5600Ω		2309-04-71	BTS-5600	
R68	2200Ω		2309-04-66	BTS-2200	
R69	6800Ω	2	2300-06-72	BTB-6800	
R70	10K		2309-04-74	BTS-10K	
R71	68K		2309-04-84	BTS-68K	
R72	680Ω		2309-04-60		
R73	680Ω		2309-04-60		
R74	150K		2309-04-90	BTS-150K	
R75	100K		2309-04-88	BTS-100K	
R76	47K		2309-04-82	BTS-47K	
R77	3.3Meg		2309-04-34	BTS-3.3Meg	
R78	100K		2309-04-86	BTS-100K	
R79	5.7Meg		2309-04-33	BTS-5.7Meg	
R80	150K		2309-04-90	BTS-150K	
R81	5600Ω		2309-04-71	BTS-5600	
R82	100K		2309-04-86	BTS-100K	
R83	1200Ω		2309-04-63	BTS-1200	
R84	5600Ω		2309-04-71	BTS-5600	
R85	470K		2309-04-94	BTS-470K	
R86	10K	2	2300-06-74	BTB-10K	
R87	470Ω		2309-04-58	BTS-470	
R88	4.7Ω		2309-05-3	BW1-4.7	
R89	1.5Ω	5	2400-01-1	FR7.5	
R90	34Ω	20	2400-71-20		
R91	470K		2309-04-94	BTS-470K	
R92	470K		2309-04-94	BTS-470K	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA SENTINEL PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert Osc.	320801-4	B6704	A-3006	20T11 ①	V40A	A-8125	26A05	A-122Z L
T2	Vert Output	320801-1	21J04	A-3037	22T11 ①	V31	A-8133	26B58	A-103X
T3A	Yoke-Horiz. (21MH)	362222-1	DF807 ②	MDF-49②	25SD1 ③	T80P10/43	DY-14A ③	Y-16 ③	Y-41 & WW9 YC1
T3B	(90°)-Vert (44MH)					③			
M9	Yoke Rear Cover & Centering Device	363333-1							
T4	Horiz. Output	320811-1							

① Drill new mounting hole(s).
② Use original rear cover and centering device, and original yoke damping network if necessary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI	IMPEDANCE SEC	REPLACEMENT DATA SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	2500Ω	3-4Ω	320802-2	21H	A-2928	A-3878	22S45	S-1X	

COILS (RF-IF)

ITEM No.	USE	SENTINEL PART No.	NOTES
L1	RF Choke	380574-30	
L2	RF Choke	380574-30	
L3	RF Choke	380574-30	
L4	Cathode Choke	380522-7	
L5	Fil. Choke	380574-8	
L6	Fil. Choke	380574-8	
L6	RF Choke	380574-8	
L7	UHF IF Output Coil	380574-13	
L8	RF Choke	380574-30	
L9	IF Trap	380415-86	

ITEM No.	USE	SENTINEL PART No.	NOTES
L10	IF Trap	380415-39	
L11	Ant. Trans.	380468-3	
L13	RF Choke	380601-8	4.7 Microhenries, IRC Part #CLA
L13	UHF IF Input Coil	380949-1	
L14	Neutr. Coil	380315-66	
L15	RF Choke	380601-9	1.0 Microhenry
L16	Mixer Plate Coil	380942-1	
L17	RF Choke	380601-1	.47 Microhenry, IRC Part #CLA

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SENTINEL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L31			362309-1	19-1578 *	TV-163 *	6310 *			115-7 *	

* Drill new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT)	REPLACEMENT DATA SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L32	.250A	56Ω	1 Hy.	320803-3	C5037 ①	C-3999 ①	C-3257	26C44 ①	C-34X

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SENTINEL PART No.	REPLACEMENT DATA
K1	Antenna Input	470MMF, 1Meg	250751-2	Centralab DA632
K2	Antenna Input	470MMF, 1Meg	250751-1	Centralab DA632
K3	Antenna Input	470MMF, 1Meg	250751-3	Centralab DA632
K4	Antenna Input	470MMF, 1Meg	250751-4	Centralab DA632
K5	Sync Coupler	150MMF, 10000MMF, 25MMF, 470K, 2.2Meg	250186-2	
K6	Vertical Integrator	2000MMF, 5000MMF, 5000MMF 6200Ω, 6200Ω, 22K	250765-1	Aerovox PA-501 Centralab PC-104 Erie 1405-01 Sprague 103C12

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA SENTINEL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	NOTES
M1	.230A	57E16-C ①②	1090A ②	1N1007 ③	RS300SL ②	6S300 ②	300 ②	
M2	.230A	57E16-C ①②	1090A ②	1N1007 ③	RS300SL ②	6S300 ②	300 ②	
M3		530554-1 ②	1215 ②		1T1 ②			

① Alternate Part #530551-6
② Selenium Type
③ Germanium Type

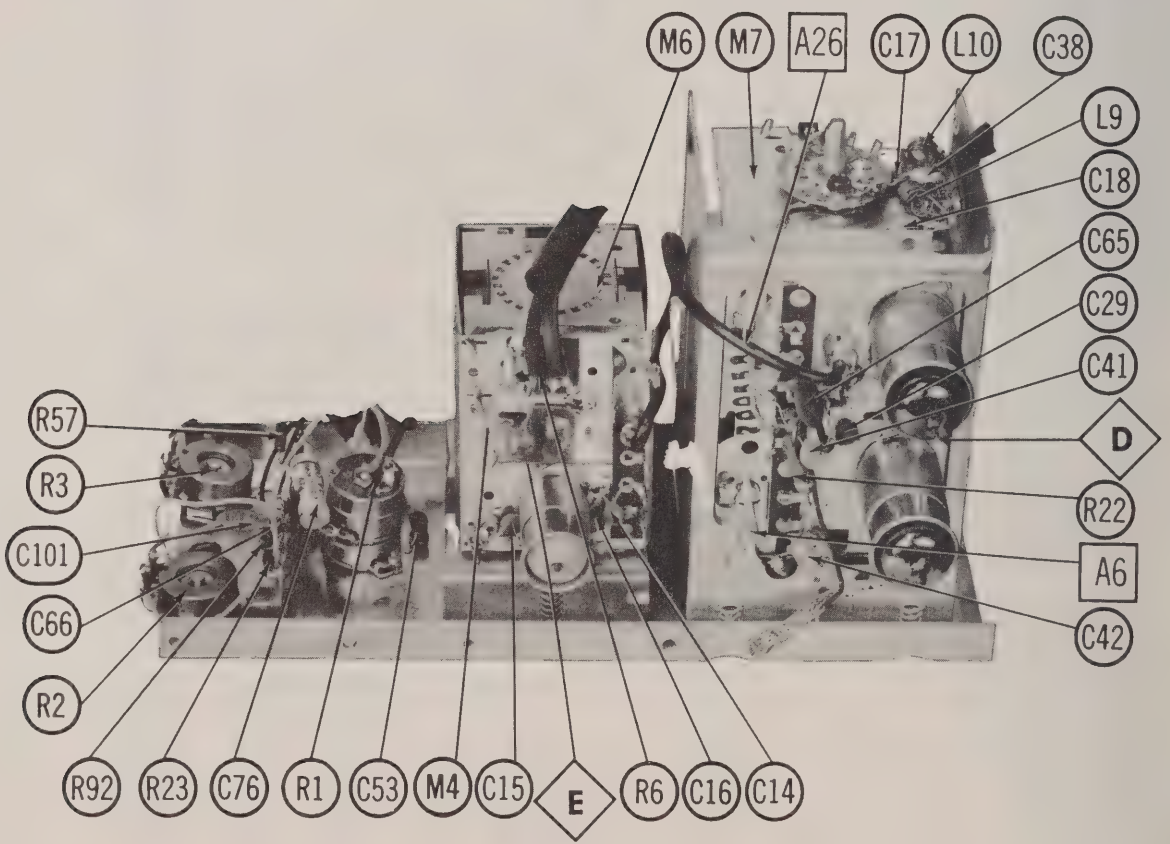
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA SENTINEL PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M4	4JB2C6	530036-1	1N82A	1N82A	UHF Mixer (Clip in)
M5	1N295 *		1N60	1N60	Video Det. (Pigtail)

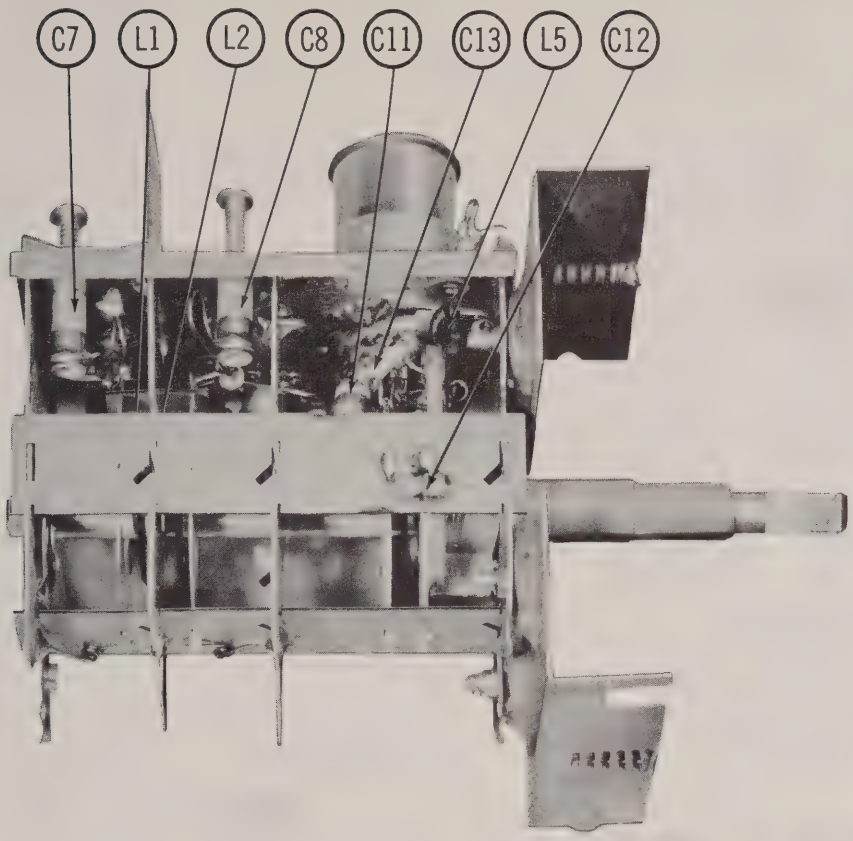
* A 1N64 may be used in some versions.

MISCELLANEOUS

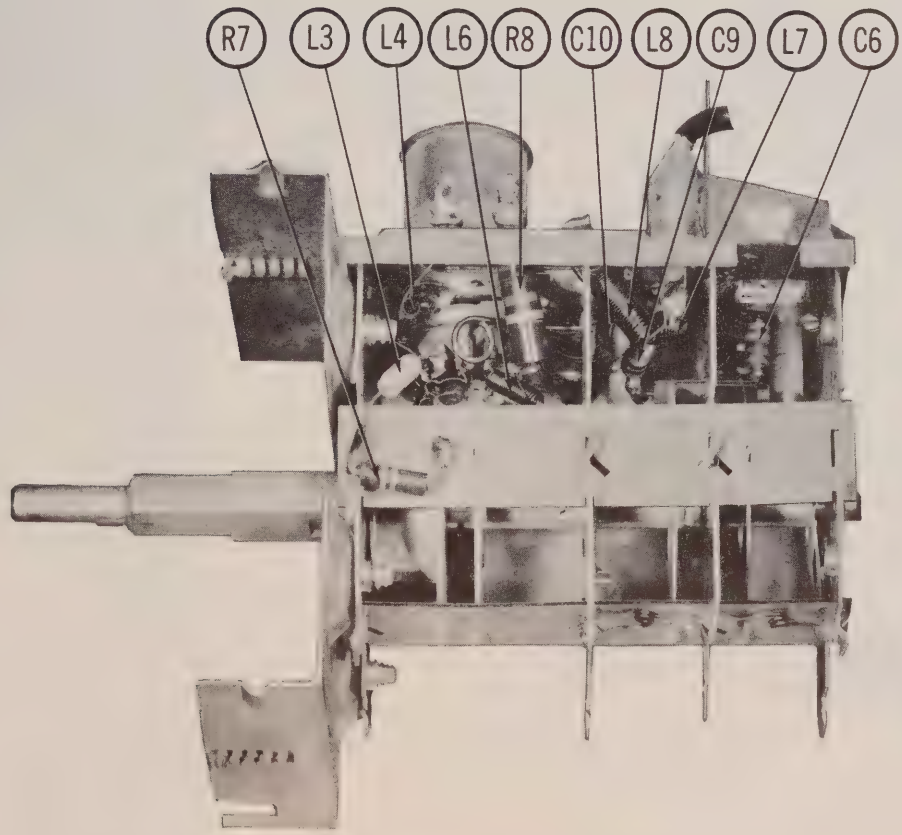
ITEM No.	PART NAME	SENTINEL PART No.	NOTES
M6	Tuner	700556-2	UHF
M7	Tuner	700558-2	VHF
M8	Crystal Det. Ass'y.	361204-1	Includes 4th. Video IF, Caps, Peaking Coil & M5
M9	Centering Device	361223-1	Includes Yoke Rear Cover
M10	Ion Trap	360492-9	



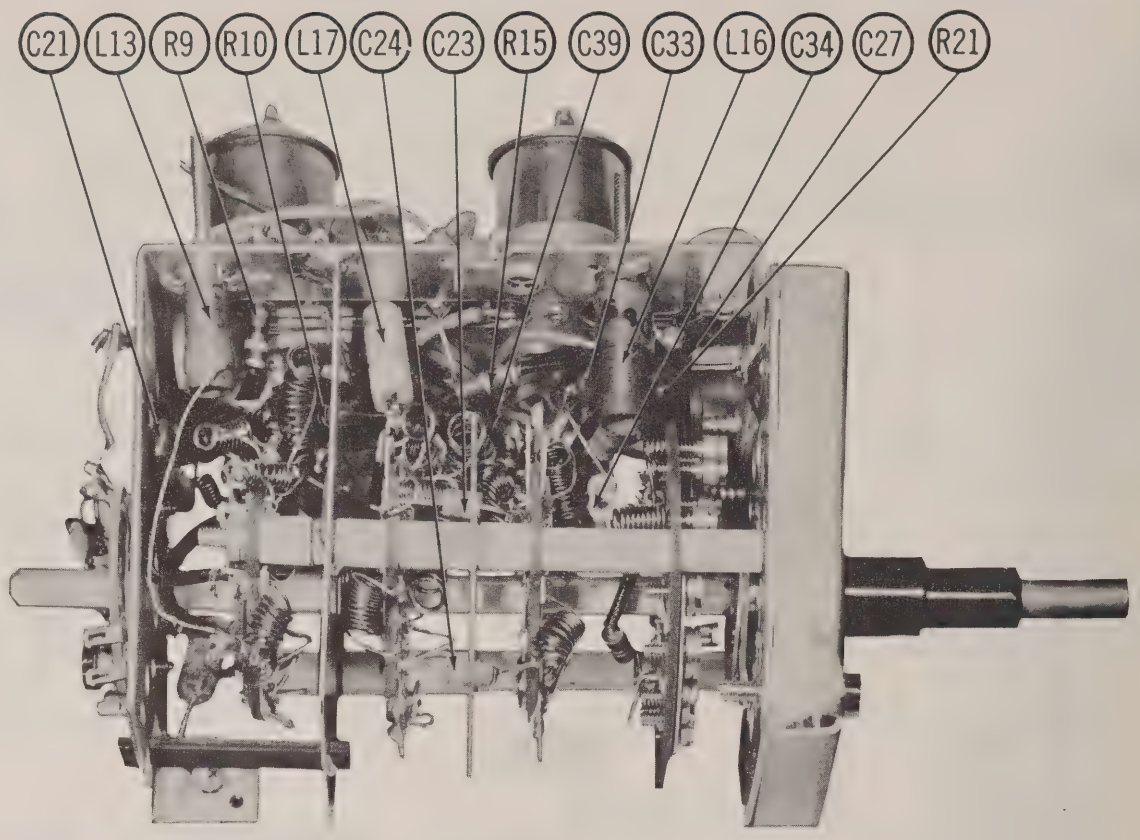
RF TUNER TOP VIEW



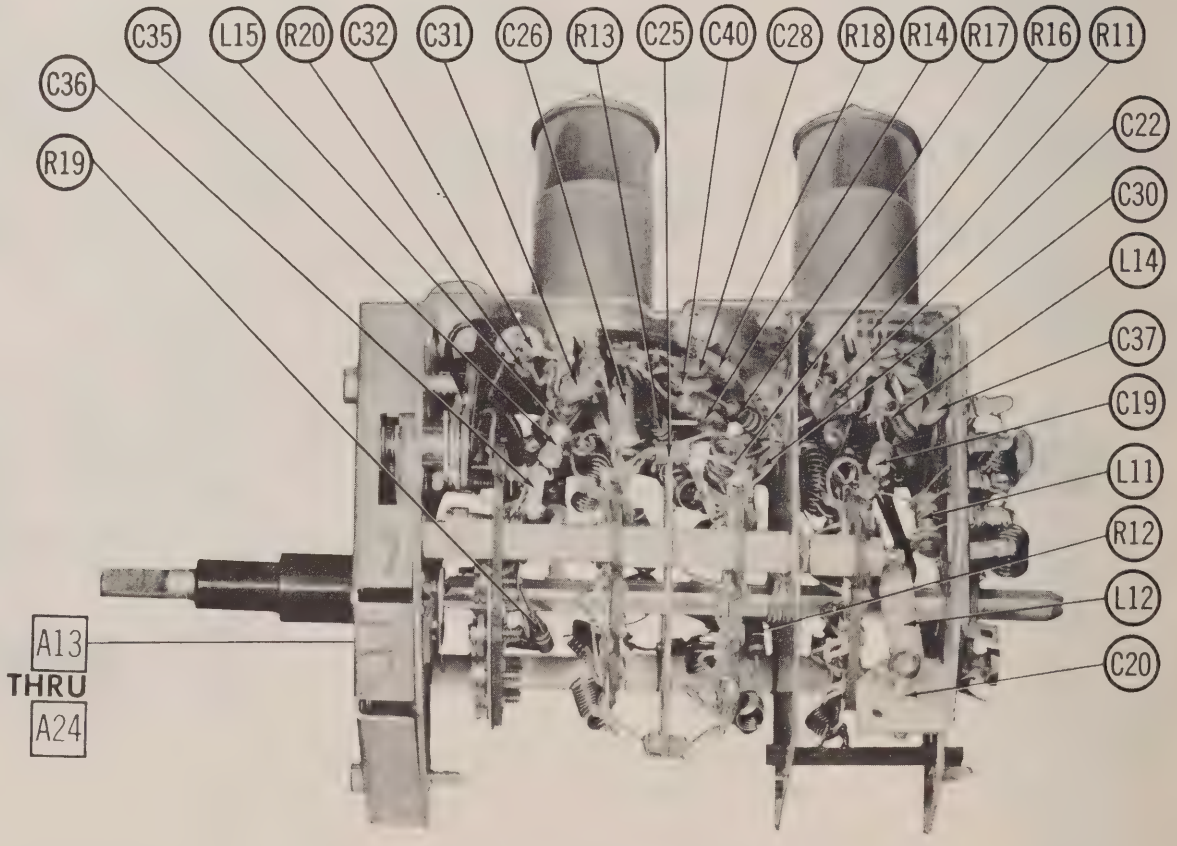
UHF TUNER-LEFT SIDE



UHF TUNER-RIGHT SIDE



VHF TUNER-LEFT SIDE



VHF TUNER-RIGHT SIDE

RETMA MEMBER

SILVERTONE MODELS 7057, 7058 (Ch. 528.46000, 528.46001)

SILVERTONE MODELS 7057, 7058 (Ch. 528.46000, 528.46001)

MODEL 7057

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE MODELS 7057, 7058 (Ch. 528.46000, 528.46001)

TRADE NAME	Silvertone Models 7057, 7058 (Ch. 528.46000, 528.46001)		
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Illinois		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES (Eight)	Types 6CB6 RF Amplifier, 6U8 Mixer-Osc., 6BA6 1st IF Amplifier, 6BA6 2nd. FM IF Amp. - AM Det. -AVC, 6AL5 Ratio Detector, 6AU6 AF Amplifier, 6V6GT Output, 5Y3GT Rectifier		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.7 Amp. @ 117 Volts AC (73 Watts)
TUNING RANGE - BROADCAST	535KC-1620KC	FREQ. MOD.	88MC-108MC

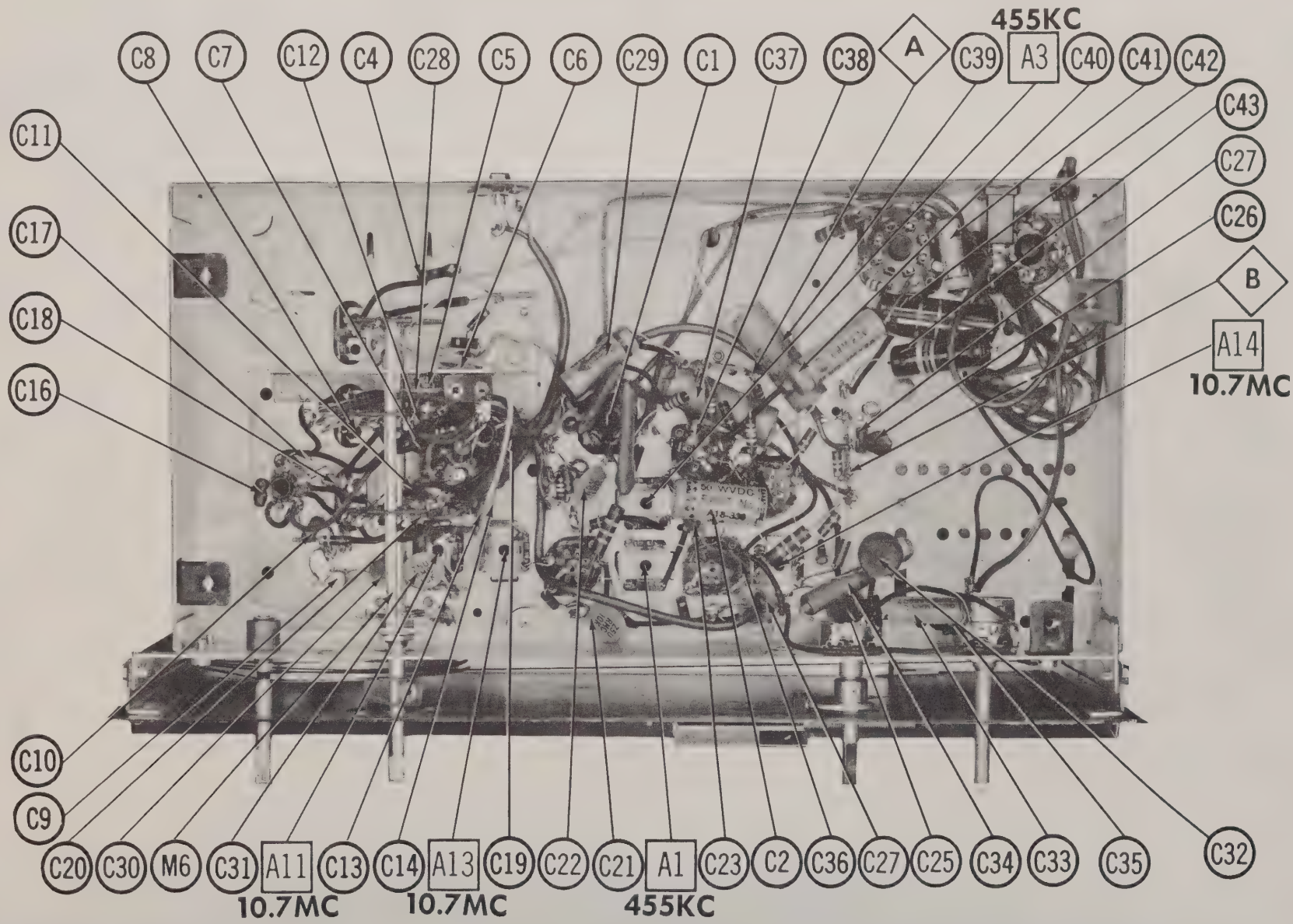
FOR SERVICE INFORMATION ON RECORD CHANGER 567.41000 OR 567.41100 - SEE PHOTOFACT SET 365 FOLDER 13

2½ TURNS

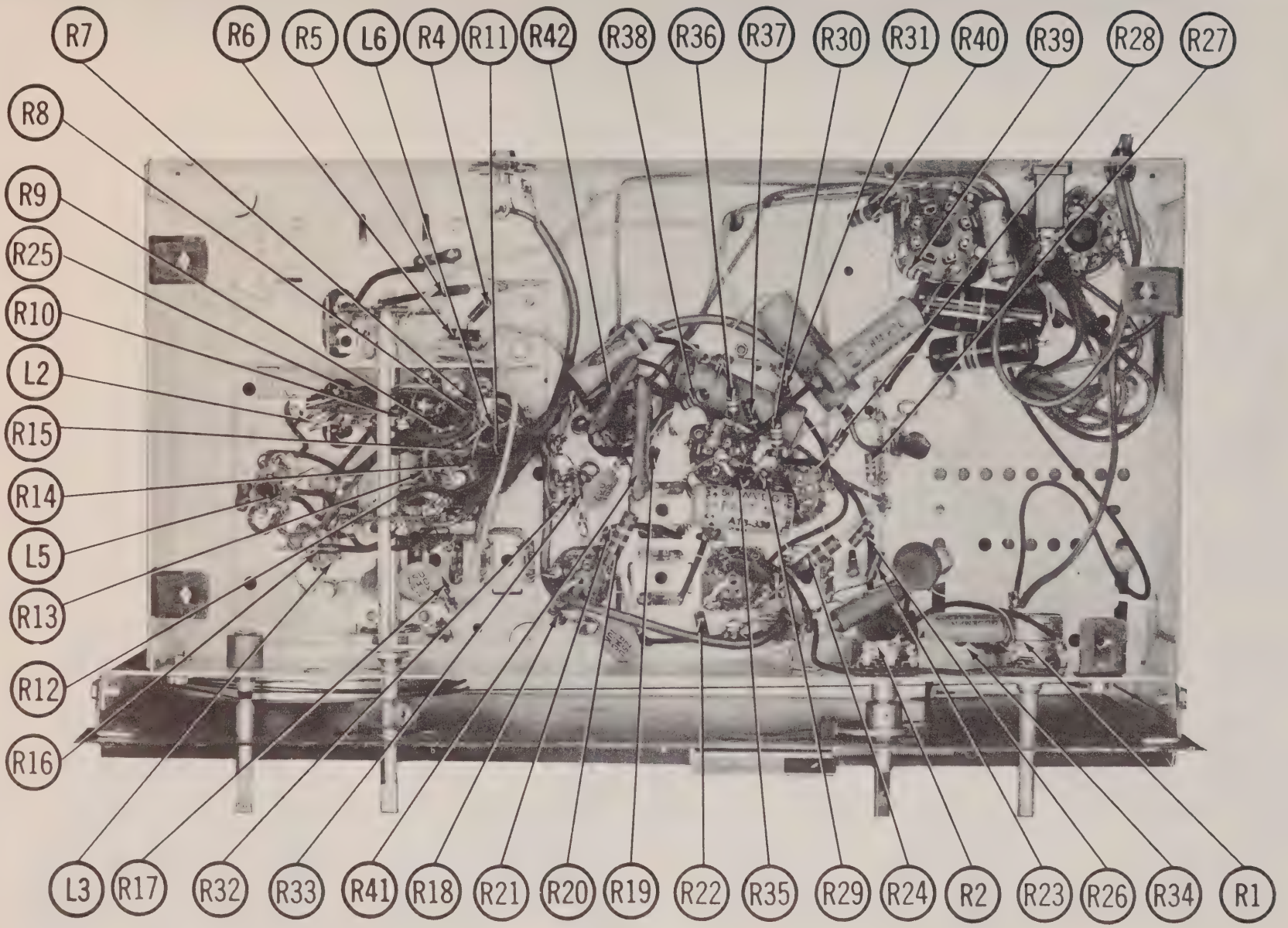
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

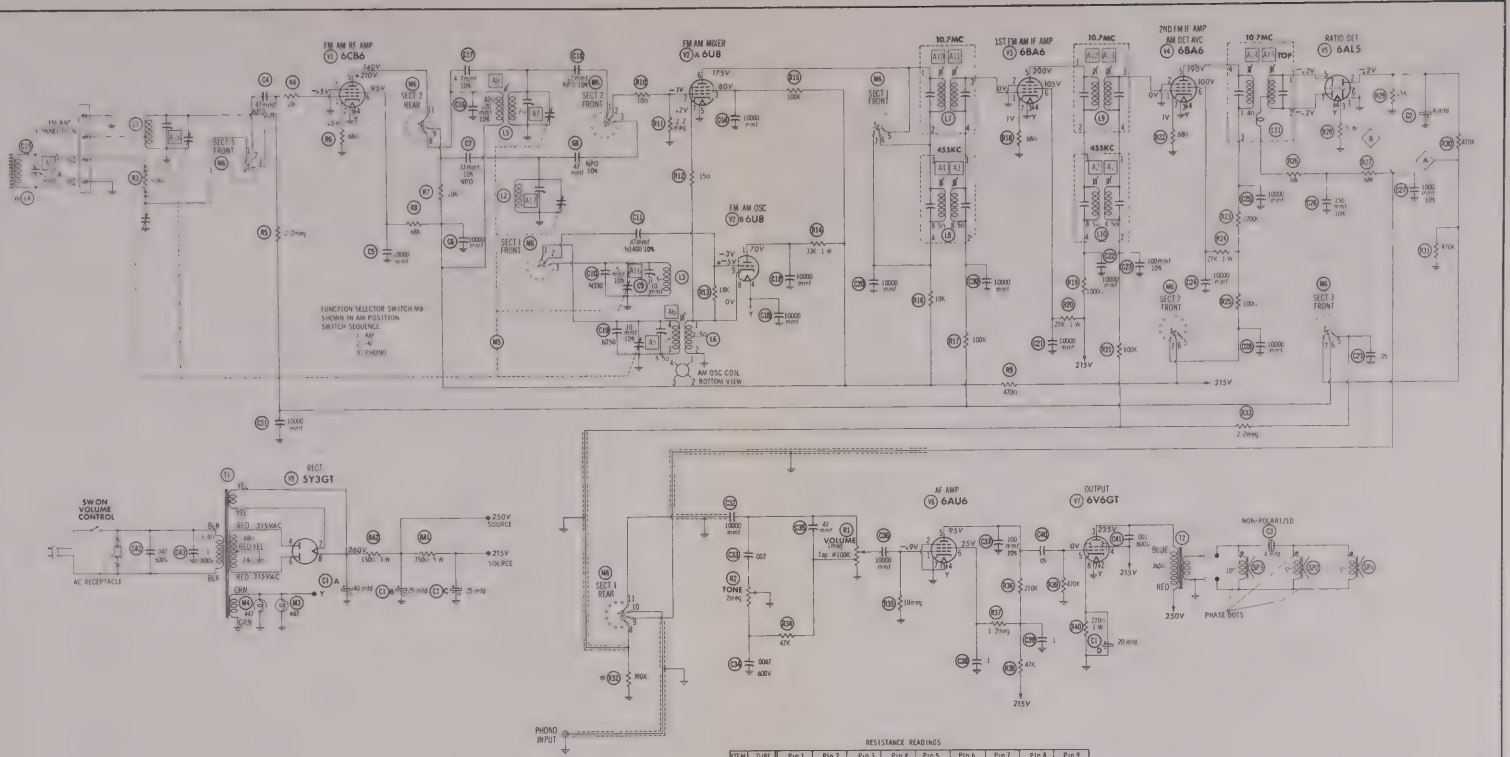
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	2.5Meg	68Ω	0Ω	2Ω	111K at 117Ω	↑68K	0Ω		
V2	6U8	1.33K	2.2Meg	↑100K	2Ω	0Ω	↑10K	16Ω	1.5Ω	18K
V3	6BA6	570K	0Ω	0Ω	2Ω	↑19000	↑27K	68Ω		
V4	6BA6	2.7Meg	0Ω	0Ω	.2Ω	↑32000	↑27K	68Ω		
V5	6AL5	0Ω	15K	8.6Ω	.2Ω	1MF	0Ω	1MF		
V6	6AU6	10Meg	0Ω	0Ω	.2Ω	↑315K	↑1.2Meg	0Ω		
V7	6V6GT	NC	.2Ω	↑515Ω	↑900Ω	470K	NC	0Ω	370Ω	
V8	5Y3GT	NC	25MA(ms)	NC	68Ω	0Ω	74Ω	0Ω	20KA(ms)	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 8 OF V8
a MEASURED IN "AM" POSITION
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

368-13

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone controls to Mid range.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1MFD	High side to AM RF stator lug on tuning gang. Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2	"	"	1620KC	"	"	"	A5	"
3	"	"	535KC	"	Tuning gang fully closed	"	A6	"
4	"	High side to A M Antenna terminal. Low side to chassis.	1400KC	"	1400KC	"	A7	"
5	"	"	600KC	"	600KC	"	A8	"
6		Loop	1400KC	"	1400KC	"	A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 thru 6.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7	.005MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (unmod.)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
8	"	"	"	"	"	DC probe to point (A). Common to point (B).	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 7 & 8.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7	.005MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (300KC Swp)	FM	Point of non-interference	Vert Amplifier to point (A). Low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8	"	"	"	"	"	Vert Amplifier to point (B). Low side to chassis.	A15	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines. Repeat steps 7 & 8.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9	.005MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	108.5MC	FM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A16	Adjust for maximum deflection.
10	300Ω Carbon Resistor	High side thru 300Ω to FM Antenna terminal. Low side to chassis.	106MC	"	106MC	"	A17, A18	Adjust for maximum deflection.
	Check calibration with signals of 88, 98 and 106MC. If error is less than .3MC and RF circuits are tracking, no further alignment is necessary. If error is MORE THAN .3MC proceed with step 11.							
11	300Ω Carbon Resistor	High side thru 300Ω to FM Antenna terminal. Low side to chassis.	88MC	FM	88MC	DC probe to point (A). Common to chassis.	L3	Adjust for maximum deflection by expanding or compressing coil turns.
12	"	"	108MC	"	108MC	"	A16	Readjust for maximum deflection.
13	"	"	106MC	"	106MC	"	A17, A18	Adjust for maximum deflection. Repeat steps 12 & 13 until desired settings are obtained.
14	"	"	"	"	"	"		Adjust FM RF Rotor plates to receive 106MC signal at correct dial setting. Recheck A17 & A18 for maximum deflection.

FIG. 1

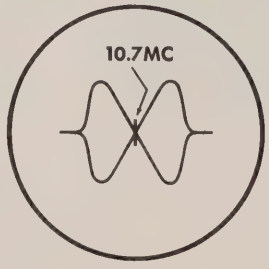


FIG. 2

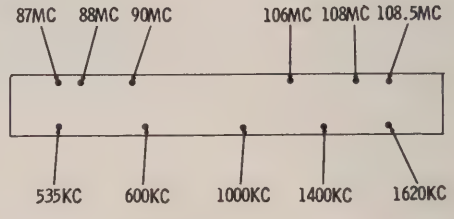


FIG. 3
ALIGNMENT CALIBRATION POINTS
(LOCATED TOP SIDE DIAL BACKPLATE)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6CB6	
V2	Mixer-Oscillator	6U8	
V3	1st. IF Amplifier	6BA6	
V4	2nd. FM IF Amp. - AM Det. -AVC	6BA6	
V5	Ratio Detector	6AL5	
V6	AF Amplifier	6AU6	
V7	Output	6V6GT	
V8	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	350	18-19-3	AFH4-76	D0624	FP396.14		Q-210	R2422 *
B	■25	350				TC26		MTD-4508	
C	▲25	350							
D	20	25							
C2	4	50	18-25-0	PRS150V4	BBR4-50	TC30	TD-4-50	FM-0504	TVA-1402
C3	4	150NP	770158	PRS450VNP4	BBR8-150 † BBR8-150 †	TC41 † TC41 †	TD-8-150 † TD-8-150 †	FM-1508 † FM-1508 †	R1251 *

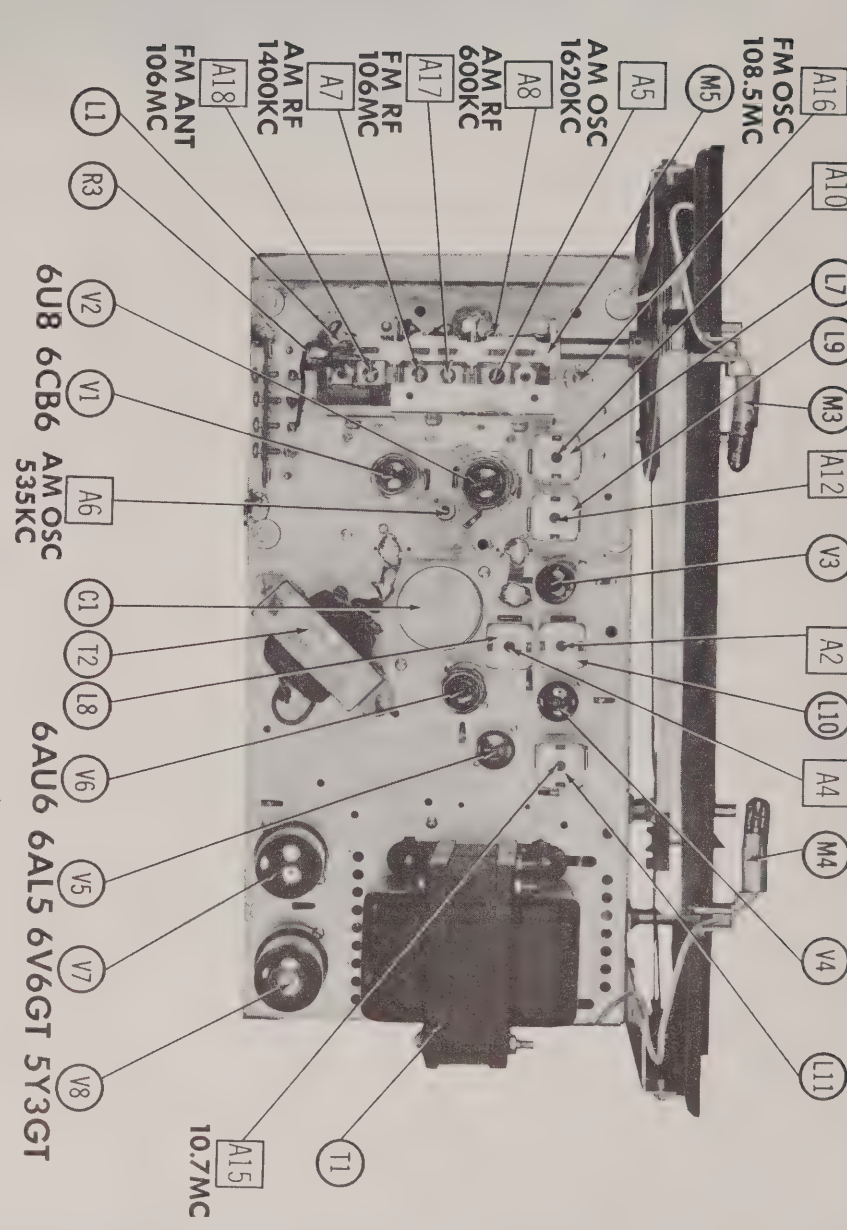
† Connect negative leads together
* Non catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	47		15-470611	NP0-SI 47	TCZ-47	CTA6Q47C	TC0-47		5TCC-Q47	NP0 10%
C5	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C7	33		15-330611	NP0-SI 33	TCZ-33	CTA6Q33C	TC0-33	ZT-5433	5TCC-Q33	NP0 10%
C8	47		15-470611	NP0-SI 47	TCZ-47	CTA6Q47C	TC0-47		5TCC-Q47	NP0
C9	1.5-10		20-151							
C10	5		15-509612							N330 10%
C11	47		15-470115							N1400 10%
C12	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C13	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C14	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C15	2.7-40		19-256							
C16	120		15-12161	1469-00012	D6-121	L10T12	ED-120		MS-312	10%
C17	4.7		15-479611	NP0-SI 4.7	TCZ-4R7	CTA6V47C	TC0-4.7	ZT-5547	5TCCB-V47	10%
C18	12		15-12061		TCZ-12	CTA6Q12C	TC0-12			NP0 10%
C19	10		15-100614	N750-SI 10	TCN-10	C10Q1C	TC7-10	NT-541	5TCU-Q1	10% N750
C20	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C22	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C23	100		15-10161	1469-0001	D6-101	L10T1	ED-100	ZT-531	MS-31	10%
C24	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	150		15-15111	1469-00015	D6-151	L10T15	ED-150	ZT-5315	MS-315	10%
C27	1000		15-10261	1464-001		1R5D1	ED-1000	MCB251	MS-21	10%
C28	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C29	.05	400	16-50323	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C30	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C31	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C33	.002	400	16-20243	BPD-002	D6-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C34	.0047	600	16-47243	BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C35	47		15-47011	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C36	10000		15-10317	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C37	100		15-10161	1469-0001	D6-101	L10T1	ED-100	MCB235	MS-31	10%
C38	.1	400	16-10443	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C39	.1	400	16-10443	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C40	.05	400	16-50343	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C41	.001	600	16-10253	BPD-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C42	.047	600	20-647-1	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C43	.1	600	20-611-1	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	24-239	BT-7417	A47-1Meg-Z	Q18-137X		Volume, Tap② 100K
B	Shaft			Not req.	FS-3	Not req.		
C	Switch			KB-1	SWE-12	76-1		
R2A	2Meg	½	24-240	B-75	A47-2Meg-S	Q11-139	U56	Tone
B	Shaft			Not req.	FS-3	Not req.	Not req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R3	3.3Ω		60-33901		Note 1
R4	10Ω		60-10001	BTS-10	
R5	2.2Meg		60-22502	BTS-2.2Meg	
R6	68Ω		60-68001	BTS-68	
R7	10K		60-10301	BTS-10K	
R8	68K		60-68301	BTS-68K	
R9	470Ω		60-47101	BTS-470	
R10	10Ω		60-10001	BTS-10	
R11	2.2Meg		60-22502	BTS-2.2Meg	
R12	15Ω		60-15001	BTS-15	
R13	18K		60-18301	BTS-18K	
R14	33K	1	60-33311	BTA-33K	
R15	100K		60-10401	BTS-100K	
R16	10K		60-10301	BTS-10K	
R17	100K		60-10402	BTS-100K	
R18	68Ω		60-68001	BTS-68	
R19	1000Ω		60-10202	BTS-1000	
R20	27K	1	60-27311	BTA-27K	
R21	100K		60-10402	BTS-100K	
R22	68Ω		60-68001	BTS-68	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R23	2200Ω		60-22202	BTS-2200	
R24	27K	1	60-27311	BTA-27K	
R25	100Ω		60-10102	BTS-100	
R26	68Ω		60-68001	BTS-68	
R27	68K		60-68301	BTS-68K	
R28	5.6Ω		60-56901		
R29	15K		60-15301	BTS-15K	
R30	470K		60-47401	BTS-470K	
R31	470K		60-47401	BTS-470K	
R32	390K		60-39401	BTS-390K	Note 2
R33	2.2Meg		60-22502	BTS-2.2Meg	
R34	47K		60-47301	BTS-47K	
R35	10Meg		60-10602	BTS-10Meg	
R36	270K		60-27401	BTS-270K	
R37	1.2Meg		60-12501	BTS-1.2Meg	
R38	47K		60-47302	BTS-47K	
R39	470K		60-47402	BTS-470K	
R40	270Ω	1	60-27111	BTA-270	
R41	750Ω	5	61-15	PW7-750	
R42	150Ω	3	61-16	PW4-150	

Note 1. Not used in chassis 528.46000
Note 2. Chassis 528.46001 uses 470K in this application (Part #60-47401)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ② .7A	600VCT ② .096A	5VAC ② 2A	6.3VAC ② 2.7A	80-341	P9312 ①		PC8422 ①	22R05 ①②	R-12A ①

① Tape center tap on 6.3V winding.
② Use universal mounting brackets.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5200Ω	3-4Ω	80-387	Z1109	A-2930①	A-3877 ①	24S51 ①	S-5X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	5"	PM	6-8Ω	013103 ① ②		① Alternate Part #79-471
SP2	5"	PM	6-8Ω	013103 ① ②		② Connect in parallel & phase
SP3	10"	PM	3-4Ω	013104 ③	10A6A	③ Alternate Part #79-472.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil	10-651				
L2	FM RF Coil	10-713				
L3	FM Osc. Coil	10-712				
L4	Loop Stick	013093 ▲		BC-418		Includes C15
L5	AM RF Coil	10-647	14-1076 *		70-RF	* Use full secondary
L6	AM Osc. Coil	10-648	14-1077	BC-393	71-OSC	
L7	1st. FM IF	10-519	16-3487	FM-254	1463	
L8	1st. AM IF	10-529	16-6758	BC-352	12-C1	
L9	2nd. FM IF	10-519	16-3487	FM-254	1463	
L10	2nd. AM IF	10-529	16-6758	BC-353	12-C2	
L11	Ratio Det.	10-534	17-3498	FM-255	1465	

▲ Alternate Part #82-106

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	SILVERTONE PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	720091	53-T	GD-J	56	PT-2	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SILVERTONE PART No.	JENSEN PART No.	WALCO PART No.	
M2	720055	† S-66 or †♦ S-66SD or ♦ S-66D	† W-75TPS or †♦ W-75DS or ♦ W-75TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Dial Light	89-7	#47
M4	Dial Light	89-7	#47
M5	Tuning Cap.	19-246	6 Gang, (AM Sections: Ant. 17-575MMF, RF 30-375MMF, Osc. 15-155MMF)
	Tuning Cap.	19-40-2	6 Gang (Alternate)
M6	Switch	69-217	Function (Rotary Wafer Type)
M7	Motor	012982	Phono (Chassis 567.41000)
	Motor	012979	Phono (Chassis 567.41100)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	310269	Tuning, Loudness, Tone, Selector Model 7057
Knob	310267	Tuning, Loudness, Tone, Selector Model 7058
Cabinet	440359	Model 7057
Cabinet	440360	Model 7058
Dial Glass	490203	
Dial Pointer	54-42	

PHOTOFACT* Folder

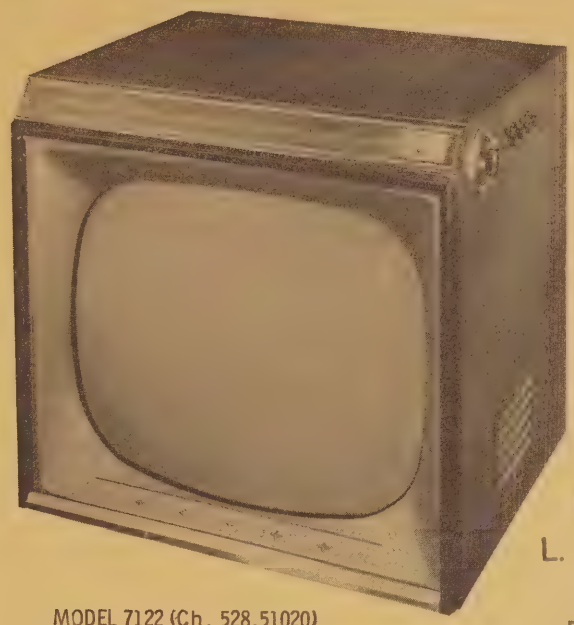
*TRADE MARK

SILVERTONE CHASSIS 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . unless it has been purchased as part of a complete volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 7122 (Ch. 528.51020)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE CHASSIS 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210

TRADE NAME	Silvertone	MODELS	CHASSIS
		7114, 7116, 7120, 7122, 7124, 7128, A, 7130, A, 7136, 7172, 7190, 7192	528.51000 528.51001 528.51020 528.51021 528.51022 528.51023 528.51024
		7115, 7117, 7121, 7123, 7129, A, 7131, A, 7173, 7191	528.51010 528.51011
		7115, 7117, 7121, 7123, 7125, 7129, A, 7131, A, 7137, 7173, 7191	528.51030 528.51031 528.51032 528.51033 528.51034
		7115, 7117, 7121, 7123, 7129, A, 7131, A, 7173, 7191	528.51210

SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Sixteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 145 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 6
Disassembly Instructions 1
Horizontal Sweep Circuit Adjustments 15
Parts List and Descriptions 12, 13, 14
Photographs
- Cabinet-Rear View 15
- Capacitor Identification 4, 9
- Chassis-Top View 7
- Printed Board 7
- RF Tuner 17, 18

Photographs (Con't)
- Resistor Identification 5, 8
- Trans., Inductor & Alignment Identification 11

Resistance Measurements 10
Servicing in the Field 1
Schematic (Alternate Tuner) 16
Schematic (TV) 2
Tube Failure Check Chart 3
Tube Placement Chart (Bottom View) 10
Tube Placement Chart (Top View) 3

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

PHOTOFACT* Folder
*TRADE MARK

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE CHASSIS 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from the side.
2. Remove 9 metal screws and the rear cover.
3. Remove 2 speaker leads at the audio output transformer, picture tube socket, yoke plug and HV lead.
4. Remove 2 metal screws and the AC interlock.
5. Remove 4 hex nuts and the tuner from the side of the cabinet.
6. Remove 2 metal screws holding the top chassis brace.
7. Remove 2 chassis bolts from the bottom.
8. Remove the chassis.
9. Remove 4 speaker nuts and 2 speakers.

MODELS	CHASSIS
7114, 7116, 7120, 7122, 7124, 7128, A, 7130, A, 7136, 7127, 7190, 7192	528.51000
	528.51001
	528.51020
	528.51021
	528.51022
	528.51023
	528.51024
7115, 7117, 7121, 7123, 7129, A, 7131, A, 7173, 7191	528.51010
	528.51011
7115, 7117, 7121, 7123, 7125, 7129, A, 7131, A, 7137, 7173, 7191	528.51030
	528.51031
	528.51032
	528.51033
	528.51034
7115, 7117, 7121, 7123, 7129, A, 7131, A, 7173, 7191	528.51210

SERVICING IN THE FIELD

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 wood screws holding the metal trim across the top edge of safety glass. Tilt the glass out at the top and remove safety glass.

SPECIAL ADJUSTMENTS

A. Focus

The focus may be varied by the position of a plug in the focus adjustment board. Readjust the ion trap for the best focus consistent with maximum brightness.

B. Width

The width may be varied by means of a metallic sleeve located between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A11) located on top of chassis.

FUSES

A 5Ω fusible resistor (R87) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

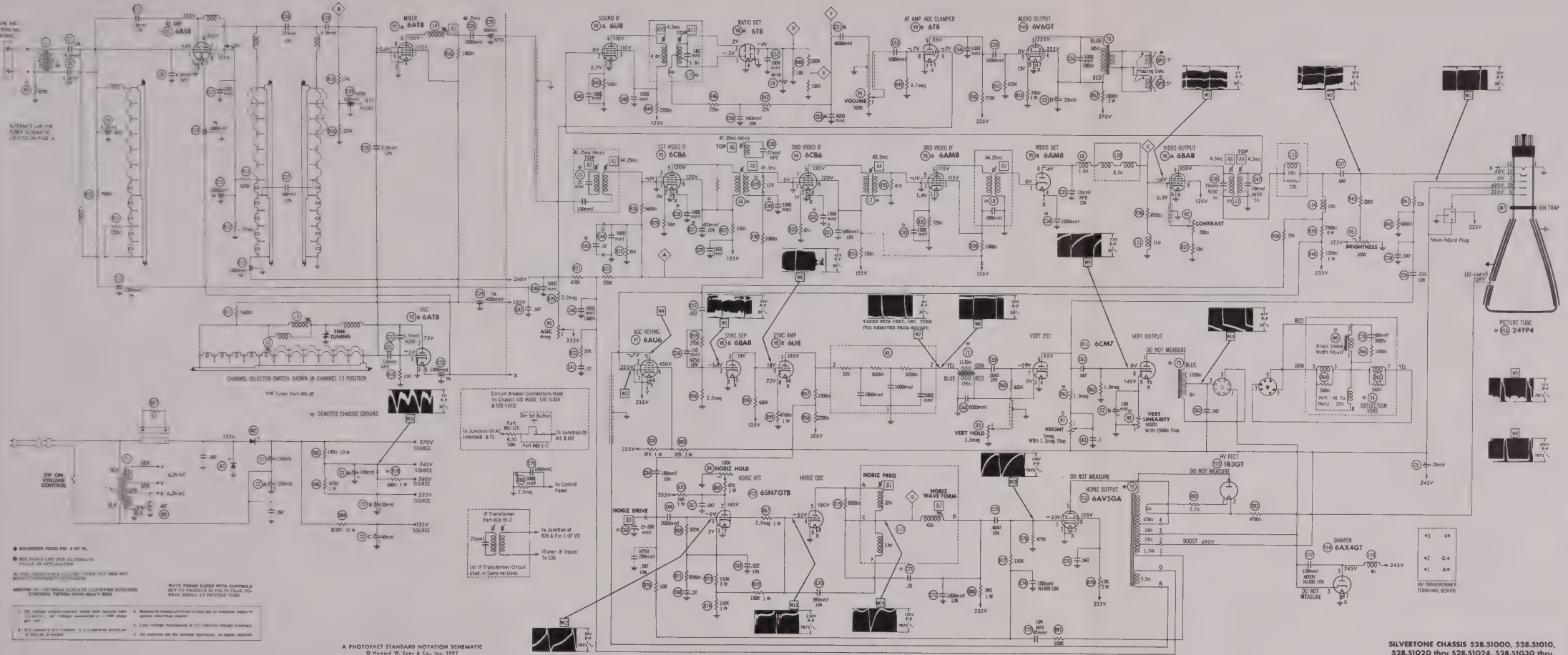
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

G920

DATE 8-57 SET 368 FOLDER 14



◆ MEASURED FROM PIN 8 OF V2.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

Ω, CPS, RESISTANCE 1 K = 1000 OHM NOT MEGOHM, CAPACITY MFD OR MMFD

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

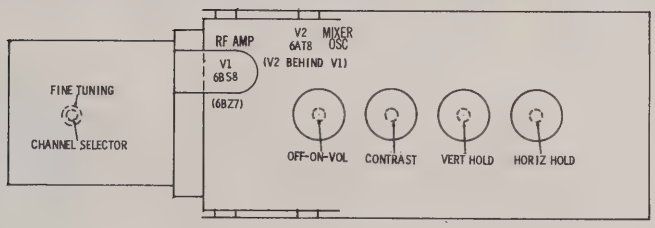
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated.
3. Readings are obtained with a Cadwell Resistor at bottom of socket.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

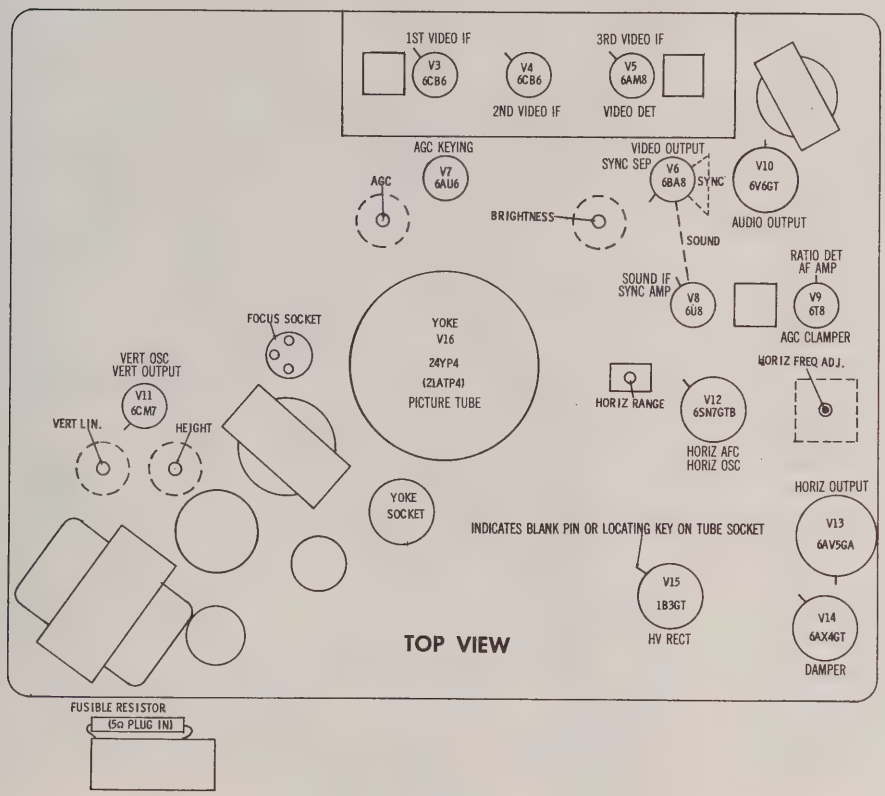
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1957

SILVERTONE CHASSIS 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

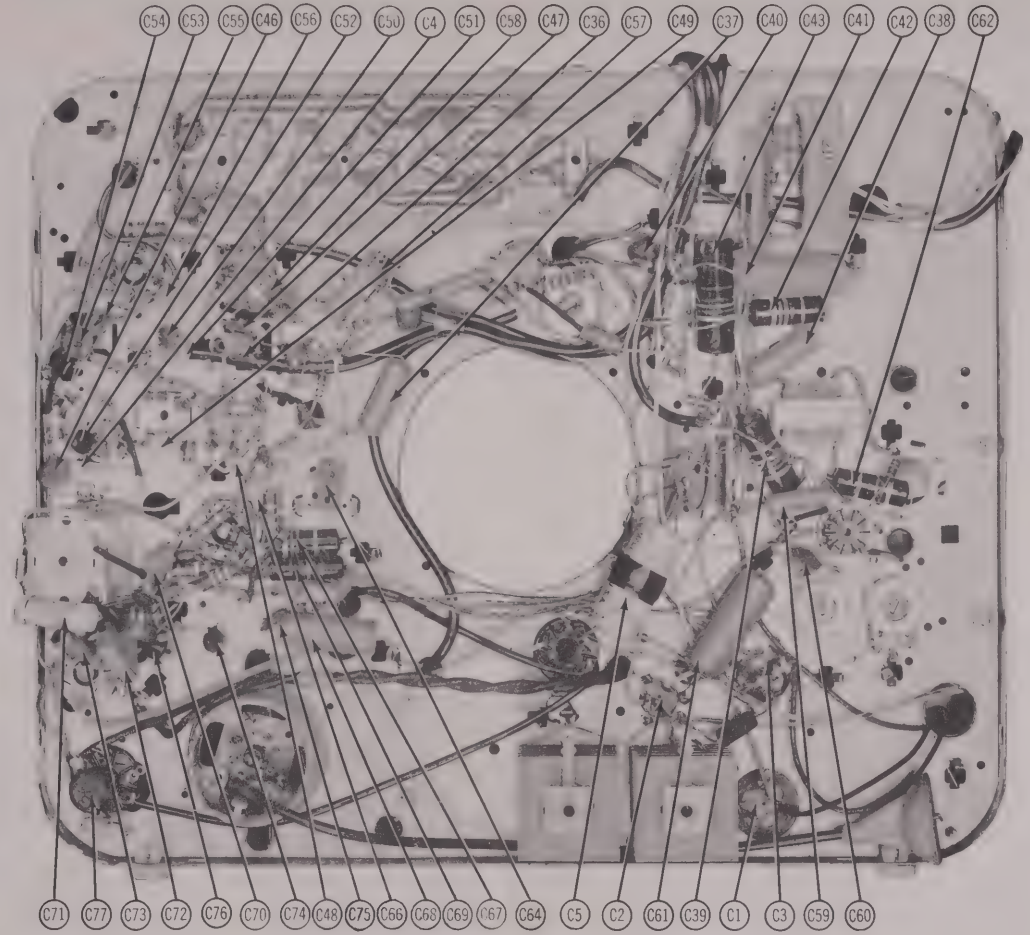
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R87), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V16**
Has pic, no sound - **V8, V9, V10**
Overloaded picture - **V7**

SYNC FAILURE
No vert. sync - **V6, V8**
No horiz. sync - **V6, V8, V12**
No vert. or horiz. sync - **V6, V8**

SWEEP FAILURE
No raster, has sound - **V12, V13, V14, V15, V16**
No vertical deflection - **V11**
Poor vert. linearity or foldover - **V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, M1, M2**
Vert. off freq. - **V11**
Horiz. off freq. - **V12**

SILVERTONE CHASSIS 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volts bias supply to point (A). Positive to chassis.
Detune A2, A3, A5, A6 and A7 by turning the cores almost out of the coil forms. If a separate marker generator is used, couple it loosely to sweep generator output cable.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to point (B). Low side to chassis.	Not used	44.25MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe to point (C). Common to chassis.	A1, A2, A3	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection.
2.	"	"	"	43.2MC	"	"	A4	"
3.	"	"	"	45.3MC	"	"	A5	"
4.	"	"	"	47.25MC	"	"	A6	Increase generator output. Adjust for MINIMUM deflection.
5.	"	"	"	41.25MC	"	"	A7	Increase generator output. Adjust for MINIMUM deflection. Repeat steps 4 and 5 as necessary.
6.	Fig. 1	High side thru matching network (Fig. 1) to point (B). Low side to chassis.	44.25MC (10MC Swp)	41.25MC 42.75MC 43.8MC 44.25MC 45.0MC 45.75MC 47.25MC	"	Vert. Amp. thru 10K to point (C). Low side to chassis.		Use only enough sweep generator output to provide a usable pattern on scope. Check for response similar to Fig. 2. If necessary, retouch A3 to place 45.75MC marker at 50% and A2 for correct tilt.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (D) to chassis. The junction of these two resistors is alignment point (E) as shown on the schematic.
Use only enough generator output to provide usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to point (C). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (D). Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point (F). Common to point (E).	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

4.5MC TRAP ALIGNMENT

Tune in a local TV station and inspect the picture for evidence of 4.5MC beat interference. If necessary, adjust A8 until the horizontal scanning lines are smooth and continuous.

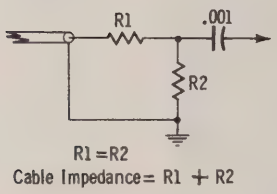


FIG. 1

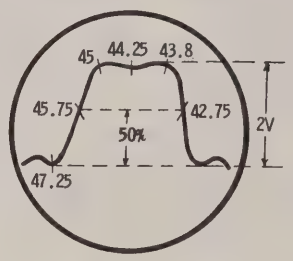
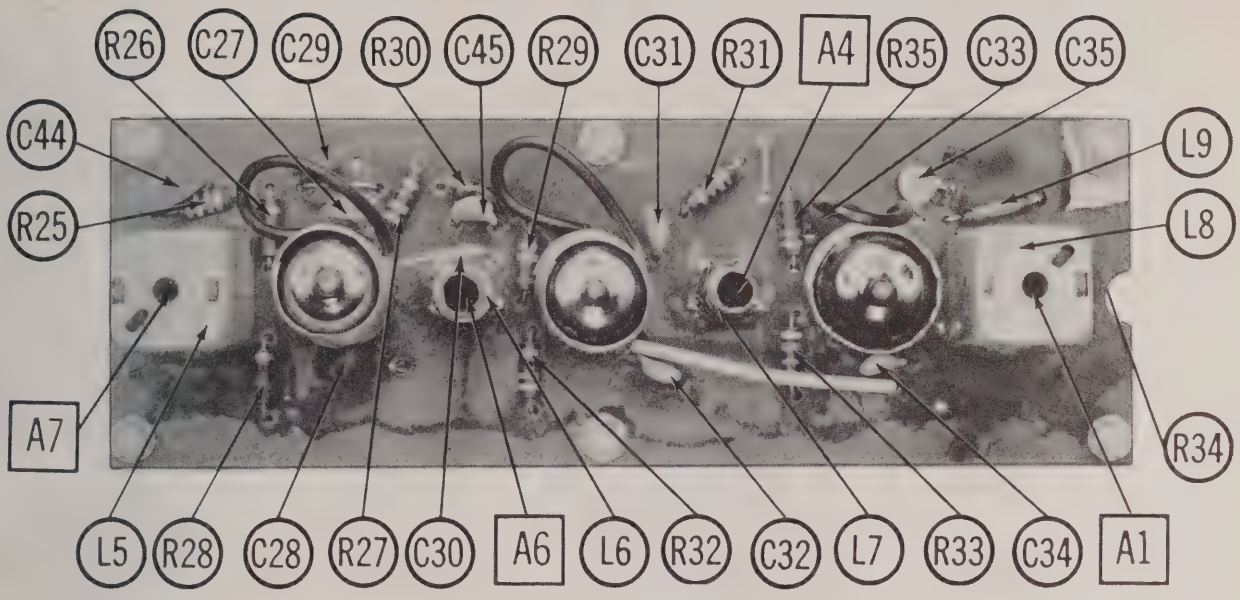
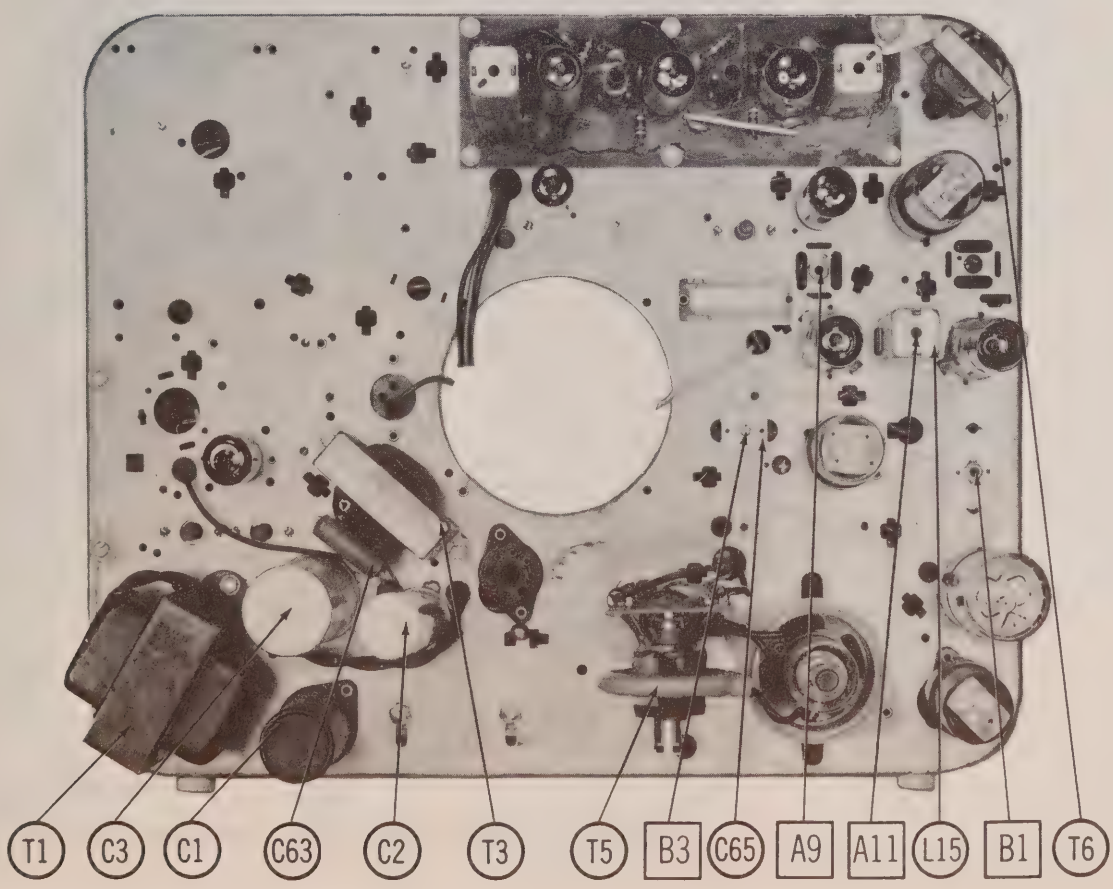


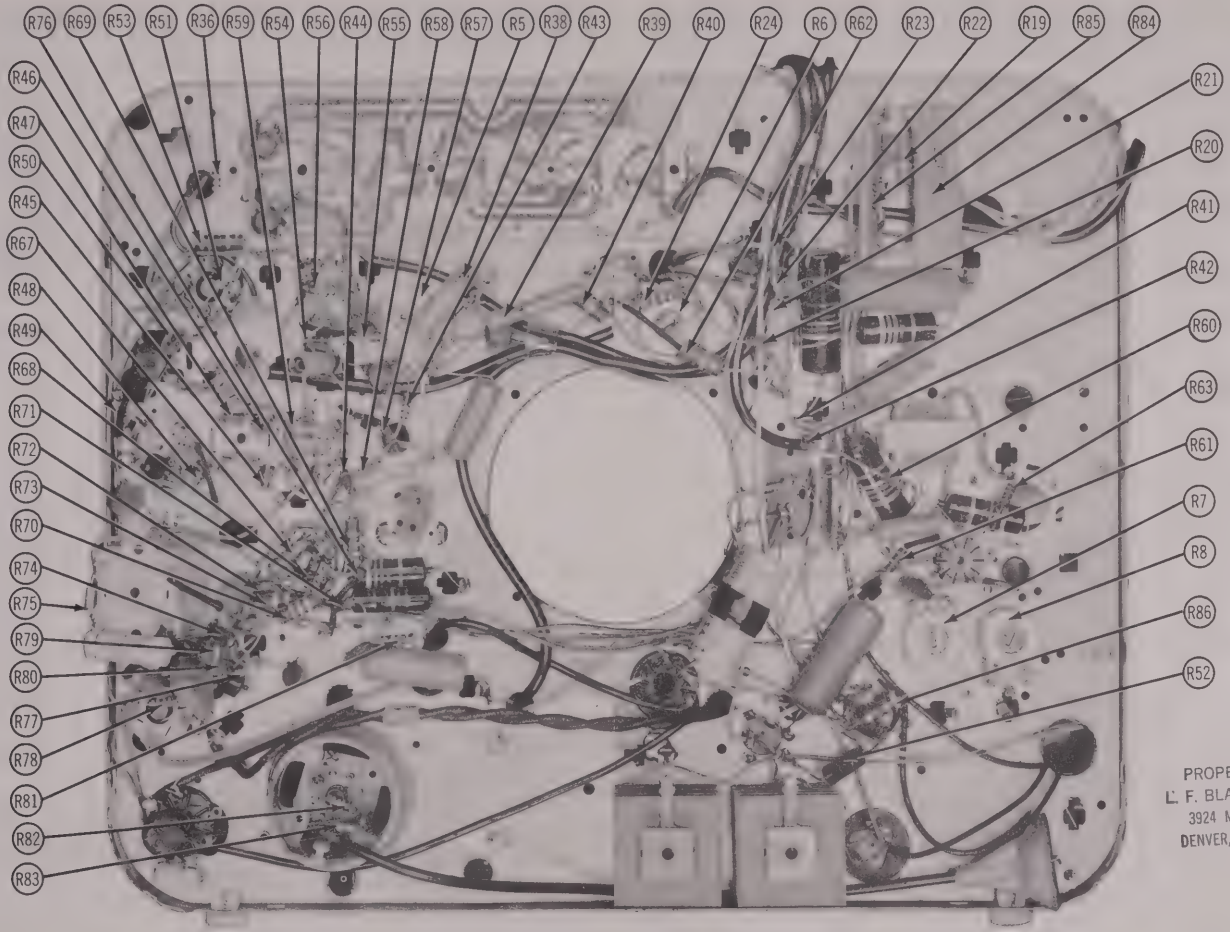
FIG. 2



VIDEO IF PRINTED BOARD



CHASSIS - TOP VIEW

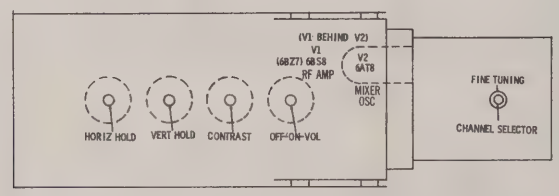


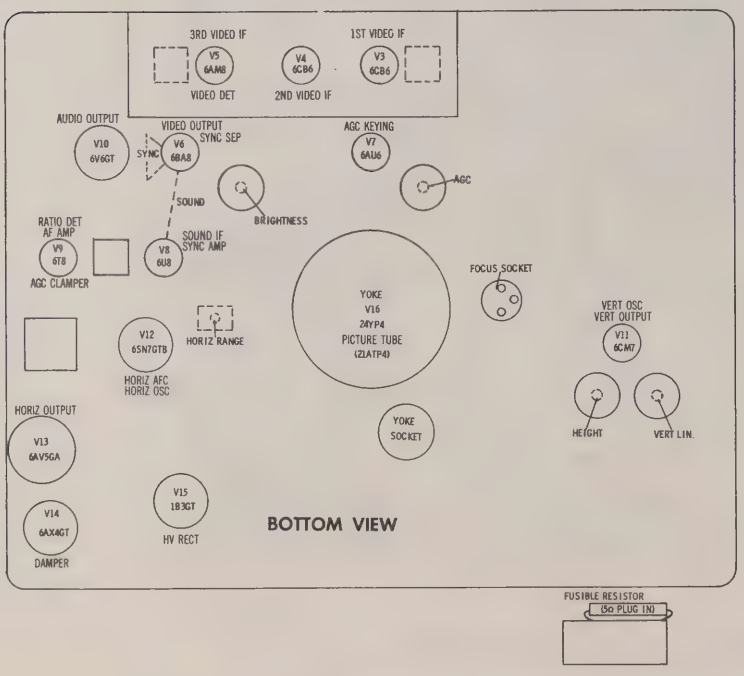
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BS8	INF	650K	0Ω	0Ω	.1Ω	† 850Ω	450K	INF	0Ω
V2	6AT8	15K	† 7700Ω	0Ω	0Ω	.1Ω	† 3900Ω	† 2100Ω	0Ω	235K
V3	6CB6	45K	56Ω	0Ω	.1Ω	† 2400Ω	† 2400Ω	0Ω		
V4	6CB6	40K	47Ω	0Ω	.1Ω	† 2400Ω	† 2400Ω	0Ω		
V5	6AM8	220Ω	.1Ω	† 3100Ω	.1Ω	0Ω	† 3100Ω	.1Ω	4700Ω	0Ω
V6	6BA8	0Ω	2.2Meg	† 680K	0Ω	.1Ω	• 200Ω	4700Ω	† 2100Ω	† 5000Ω
V7	6AU6	† 1900Ω	† 650Ω	† 650Ω	† 650Ω	250K	† 45K	† 650Ω		
V8	6U8	† 6000Ω	5Ω	† 4300Ω	.1Ω	0Ω	† 4300Ω	560Ω	4700Ω	† 680K
V9	6T8	INF	18K	INF	0Ω	.1Ω	† 650K	0Ω	4.7Meg	† 270K
V10	6V6GT	NC	0Ω	† 1400Ω	† 1000Ω	470K	TP	.1Ω	330Ω	
V11	6CM7	‡ 1700Ω	NC	195Ω	0Ω	.1Ω	‡• 4Meg	• 1.5Meg	1.8Meg	• 2700Ω
V12	6SN7GTB	1.1Meg	† 40K	300K	250K	† 39K	0Ω	0Ω	.1Ω	
V13	6AV5GA	470K	0Ω	0Ω	NC	‡ 16Ω	NC	.1Ω	† 10K	
V14	6AX4GT	NC	NC	¶	TP	† 185Ω	NC	.1Ω	0Ω	
V15	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡ 486Ω
V16	24YP4	0Ω	29K	PIN 6 † 650Ω	PIN 10 ‡ 23Ω	PIN 11 230K	PIN 12 .1Ω			

† MEASURED FROM OUTPUT OF M2.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL.
‡ MEASURED FROM PIN 3 OF V14.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION
TP TIE POINT





TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE CHASSIS 528.51000, 528.51010, 528.51020 thru 528.51024, 528.51030 thru 528.51034, 528.51210

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	R F Amplifier	6BH9	Note 1
V2	Mixer-Oscillator	6AT8	
V3	1st Video IF Amp	6CB6	
V4	2nd Video IF Amp	6CB6	
V5	3rd Video IF Amp - Video Det	6AN6	
V6	Video Output-Sync Sep AGC Keying	6BA8	
V7	Sound IF Amp -Sync Amp.	6AU6	
V8		6U8	
V9	Ratio Det - AF Amp. - AGC Clamper	6T8	
V10	Audio Output	6V6GT	
V11	Vert Osc - Vert Output	6CM7	
V12	Horiz AFC-Horiz. Osc	6BN7GTB	
V13	Horiz Output	6AX5GA	
V14	Damper	6AX4GT	
V15	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA Silvertone PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	NOTES
V16	24YP4	24YP4 ①	24YP4 ①	① Aluminized ② Silver screen "SS"
			24DP4	
	21ATP4	21ATP4A ① ATP4 ②	21ATP4A ①	
			21ATP4A ②	
			21ATP4A ③	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT	Silvertone PART No	AEROVOX PART No	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No	NOTES
C1	150	150	18-7-4	AFH81-25	XA0181	9 FU1	TMS-25	T-050	TVL-1429	
C4A	■150	150	18 & 4		XA0181	9 FU1	TMS-25	T-050	RS384 *	
B	■200	50			BR0X05	TC3501	TD-100-50	MT-05100		
C3A	■100	300	18-20-3	AFH4-02-60	BR0044	FP442.9		Q-443	RS385 *	
B	■20	300			BR0X04	TC77		MDT-3520		
C	■60	300								
D	20	300								
C4	4	50	18-25-0	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1305	
C5	20	300	18-40-0		BR4035-1	TC78 ①	TD-20-350 ①	FM-4540 ①	RS384 *	
					BR4035 ②	TC78 ②	TD-40-350 ②	FM-4540 ②		

① Connect negative leaders together.
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLT	Silvertone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	8.0		182-809	NP0-81 S		C10V8C				10%
C7	8.0		182-809	NP0-81 S		C10V8C				10%
C8	4.0					C10V4C				NP0
C9	9.0		454-909							NP0
C10	1000		454-101	EF-001	MPT-1000	C10V2C			503C-DI	5%
C11	1.8		430-189	NP0-81.1 S		C10V1C				10%
C12	1000		2033-23	DD-101	BYA5DI	ED-1000	DC5DI	5HK-DI		
C13	.005		244-1	EF-001	MPT-1000			503C-DI	5%	
C14	.005		244-1	EF-001	MPT-1000			503C-DI	5%	
C15	1000		244-1	EF-001	MPT-1000			503C-DI	5%	
C16	47		401-475							10%
C17	68		401-685		TCZ-8S8		TCD-68			
C18	6.8		228-689	NP0-81 6.8	TCZ-8R8	C10V68C	TCC-6.8	Z7-5568	STCCB-V68	
C19	100		248-101							N750
C20	2.0		401-209	NP0-81 2.2	TCZ-2R2	C10V2C				10%
C21	150		152-150	NP0-81 10	TCZ-10	C10Q8	TCC-10	Z7-541	STCC-Q	NP0
C22	1.5		171-159							N240
C23	1000		244-1	EF-001	MPT-1000				503C-DI	5%
C24	1000		244-1	EF-001	MPT-1000				503C-DI	5%
C25	1000		2033-23	BPD-001	DD-103	BYA5DI	ED-1000	DC5DI	5HK-DI	
C26	68		248-686							10%
C27	470		15-4711		D5-471	L10T47	ED-470			
C28	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C29	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C30	47			NP0-81 S5	TCZ-47	C10Q4TC	TCD-47			NP0
C31	680		15-6811		D5-681		ED-680			10%
C32	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C33	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C34	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C35	10		15-10001	NP0-81 10	TCZ-10	C10Q1C	TCC-10	Z7-541	STCC-Q	10% NP0
C36	33									N150
C37	.047	600	16-47368	BPD-05	DF-503	CUB4847		GEM-4147	4TM-847	
C38	.047	600	16-47368	BPD-05	DF-503	CUB4847		GEM-4147	4TM-847	10%
C39	500	600	16-33357							
C40	5000	5000								
C41	22	300	16-2242S	P368H-22		CUB22P2		GEM-3022	2TM-P22	
C42	.047	600	16-47368	BPD-05	DF-503	CUB4847		GEM-4147	4TM-847	
C43	47	600		P468H-47		CUB47P7		GEM-4047	4TM-P47	
C44	5000	600	15-5021T	BPD-005	DD-502	BYA5D05	ED-005	DC5D5	5HK-D5	
C45	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C46	5000		15-5021T	BPD-005	DD-502	BYA5D05	ED-005	DC5D5	5HK-D5	
C47	33									N150
C48	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C49	5000		15-5021T	BPD-005	DD-502	BYA5D05	ED-005	DC5D5	5HK-D5	
C50	580		15-5811				ED-580			
C51A	4000		30-54-0	BPD-32004	D5-402	BYC5DD4	ED2-004	DCD534	5HK-HD4	
B	4000				LD5-402					
C52	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C53	5000		15-5021T	BPD-005	DD-502	BYA5D05	ED-005	DC5D5	5HK-D5	
C54	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C55	1000		15-10017	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C56	1000	3000	15-10436							
C57	022	400	16-32265	BPD-03	DF-303	CUB4822	ED-03	GEM-4122	2TM-S22	
C58	150		15-15114	H750-01.150	TCN-150	C10T15D	TCC-150		1TVL-T15	10% N750
C59	.0047	600	16-47257							10%
C60	5000		15-5021T	BPD-005	DD-502	BYA5D05	ED-005	DC5D5	5HK-D5	
C61	1	600	30-5-1	P368H-1		CUB5P1		GEM-501	5TM-P1	
C62	.047	600		BPD-05	DF-503	CUB4847		GEM-4147	4TM-847	
C63	.047	300	16-47388	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C64	180		17-1819	1469-0001B		22RS718			M3-318	10%
C65	25									
	280		19-152-0							
C66	2000		15-30218	BPD-002	DD-202	BYA5D02	ED-002	DC5D2	5HK-D2	
C67	.047	600	16-47368	BPD-05	DF-503	CUB4847		GEM-4147	4TM-P22	
C68	.22	300	16-32428	P368H-33		CUB3P33		GEM-3022	2TM-P33	
C69	022	300	16-32337							
C70	330		17-3319			1RS739			M3-339	10%
C71	01	600	30-19-1							
C72	1000		17-10219	1484-001		1RS01			MC25S	M3-31 10%

CAPACITORS (cont)

ITEM No	RATING CAP	VOLT	Silvertone PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C75	.0047	600	16-47257							10%
C76	100		15-10105							10% N1400
C77	47		15-4703L	NP0-81 47		TCZ-47	C10Q4TC	TCC-47	Z7-5547	5TCC-Q47 10% NP0
C78	.047	600	16-47348	BPD-05		DF-503	CUB4847		GEM-4147	4TM-847
C79	100	4000	15-10405							10% N1400
C80	5000	1000	30-17-0		HVD-30-88	DD50-680	HVB390G69		DC30468	30GAB-Q68
		VAC				30-3022				

① Chassis 528, 5100G & 528.5100 employ 1 of 1000MMF dual in this application(Part #15-10211)
② In chassis 528, 5104G and 528.5104 , this part is a 200MMF, 500V , 10% N750 Temperature Coffecient (Part #15-40614).
③ Special part.

CONTROLS

ITEM No	RATING RESIST ANCE	WATTS	Silvertone PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1	24-441	B-50	A47-500K-Z	Q33-133	U49	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KS-1	SWE-11	76-1	S28-28	
R2A	2000	1	25-41	B-2	A47-500-6	Q31-201	U2	Contrast
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	1.5Meg	1	24-243	B-742	A47-1.5Meg-B	Q31-138	U155	Vert. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4A	100K	1	25-94	B-40	A47-100K-B	Q31-128	U41	Horiz. Hold
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	100K	1	25-40	B-40	A47-100K-S	Q31-128	T41SL	Brightness
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R6A	4Meg	1	25-58	AB-68	A47-4Meg-S	Q31-141	PTA56L	AGC
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R7A	1Meg	1	25-91	AB-68 *	A47-1Meg-S*	Q31-141 *		Height with 1.2Meg stop-Note 1
B	Shaft			AK-19	RN-3	TQ		
R8A	1500Ω	1	25-93	AB-10 *	A47-1500-S	Q31-114 *	PTA35ZL *	Vert. Lin. with 1500Ω stop
B	Shaft			AK-19	RN-3	TQ	Not Req	

Note 1. Some versions may use a 2.5Meg with 1.2Meg stop, or 2.7Meg with 1.8Meg stop.
Manufacturer states to replace with a 5Meg control with 1.5Meg stop and if necessary, change R81 to 1 Meg.
* Use a 1.4Meg resistor in series with right hand terminal
* Use a 1500Ω resistor in series with right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	WATT	Silvertone PART No.	IRC PART No.	NOTES
R9	8.45K		106-824	BTS-8450	Note 1
R10	3900Ω		106-394	BTS-3900	
R11	4200Ω		106-422	BTS-4200	
R12	1.4Meg		106-145	BTS-1.4Meg	
R13	820K		106-824	BTS-820K	
R14	15K		106-153	BTS-15K	
R15	410K		111-424	BTS-410K	
R16	180Ω		106-181	BTS-180	
R17	5600Ω		106-564	BTS-5600	
R18	15K		106-153	BTS-15K	
R19	680Ω	1	60-6811	BTA-680	Note 2
R20	2.4Meg		60-2450		
R21	470K		60-4740		
R22	22K		60-2230		
R23	240K		60-2410		
R24	47K	1	60-4731	BTA-47K	
R25	33K		60-3303		
R26	5600Ω		60-5601		
R27	330Ω		60-3301		
R28	56Ω		60-5600	BTS-56	Note 3
R29	12K		60-1230		
R30	1000Ω		60-1021		
R31	330Ω		60-3301	BTS-330	
R32	47Ω		60-4700	BTS-47	
R33	47K		60-4703	BTS-47K	
R34	1000Ω		60-1021	BTS-1000	
R35	220Ω		60-2201	BTS-220	
R36	4700Ω		60-4701	BTS-4700	
R37	18Ω		60-1801	BTS-18	
R38	33K		60-3330	BTS-33K	
R39	33000Ω	4	61-20	PWT-3300	
R40	1200Ω	1	60-1221	BTA-1200	
R41	22K		60-2230	BTS-22K	
R42	8500Ω		60-8501	BTS-8500	
R43	220K		60-2401	BTS-220K	
R44	2000Ω		60-2201	BTS-2200	
R45	560Ω		60-5610	BTS-560	
R46	220Ω		60-2201	BTS-220	
R47	22K		60-2230	BTS-22K	
R48	18K		60-1830	BTS-18K	

ITEM No.	RATING OHMS	WATT	Silvertone PART No.	IRC PART No.	NOTES
R49	4.7Meg		60-4750Z	BTS-4.7Meg	
R50	270K		60-2740	BTS-270K	
R51	470K		60-4740	BTS-470K	
R52	1000Ω	4	60-1022Z	BTB-1000	
R53	330Ω	1	60-3311	BTA-330	
R54	2.4Meg		60-2450	BTS-2.4Meg	
R55	270K		60-2740	BTS-270K	
R56	680K		60-6840	BTS-680K	
R57	1800Ω		60-1820	BTS-1800	
R58	2200Ω		60-2220	BTS-2200	
R59	4700Ω	1	60-4721	BTA-4700	
R60	820K		60-8240	BTS-820K	
R61	1.5Meg		60-1550	BTS-1.5Meg	Note 4
R62	22K	2	60-2253	BTB-22K	
R63	1.5Meg		60-1550	BTS-1.5Meg	
R64	560Ω				
R65	560Ω				
R66	1000Ω				
R67	2.7Meg	1	60-2751		
R68	820K		60-8240		
R69	47K	1	60-4731		
R70	56K	1	60-5631		
R71	8200Ω		60-8201		
R72	100K	1	60-1041		
R73	150K	1	60-1541		
R74	150Ω	1	60-1541	BTA-150K	
R75	8200Ω		60-8201	BTS-8200	
R76	10K		60-1031	BTS-10K	
R77	150K		60-1541	BTS-150K	
R78	470K		60-4740Z	BTS-470K	
R79	10K	3	60-1033	BTB-10K	
R80	39K	1	60-3931	BTA-39K	
R81	100K		60-1041	BTS-100K	
R82	2.7Ω		60-2791	BWJ-2.7	
R83	4700Ω		60-4720I	BTS-4700	
R84	4000Ω	15	61-7		
R85	180Ω	10	61-53		
R86	470Ω	1	60-4711	BTA-470	
R87	5Ω		43-1009		
R88	2.2Meg		60-2260I	BTS-2.2Meg	Note 5

Note 1. Some versions may use a 22K in this application.
Note 2. Some versions may use a 330Ω in this application.
Note 3. Not used in some versions
Note 4. Some versions may use a 2.7Meg in this application.
Note 5. Some versions may use 470K resistor in this application.

TRANSFORMER (FILAMENT)

ITEM No	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	Silvertone PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	117VAC	6.3V	6.3V		60-386		P-3083			
	& .5A	& .3A	& 1.9A							

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	Silvertone PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Vert Osc.	880-380-A	B6702	A-3003	209T1	V405	A-8125	26A03	A-27X
T3	Alt. Vert Output	880-525	Z1808 ①	226T1 ①		V312 ①	A-8141 ①	26S54 ①	A-104X ①
	Alt. Vert. Output	80-325	Z1808 ②	226T1 ②		V312 ②	A-8141 ②	26S54 ②	A-104X ②
T4A	Yoke-Horiz. (20MH)	C10-8150	DY-807 ③	MDF-94 ③	225GX ④	Y9GTX-43 ③	DY-16AC ④	Y-16 ④	Y-44 ④
B	(90°) Vert. (40MH)			94 ④		44 ④			NW2 ④
	Alt. Yoke		10-815						
	Centering Device		83-086						
	Width Sleeve		82-962						
T5	Horiz. Output		C80-375		HVO-136 *	X144 *	HO-374 *	FLY-147 *	
	Alt. Horiz. Output		80-375		HVO-136*	X144 *	HO-374 *	FLY-147 *	

① Drill new mounting hole(s).
② Includes resistor R84, R85, R86, capacitor C78 and rear cover, centering device, width sleeve and yoke plug.
③ Use original horizontal damping network, if necessary.
④ Use original rear cover and centering device and width sleeve.
Jumper yoke terminals #1 and #6 connect yoke terminal #3 to yoke plug pin #7, yoke terminals #1 and #6 to yoke plug pin #5, yoke terminals #4 to yoke plug pin #3.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4	4	4	4	4	4	4	
3	3	3	3	3	3	3	
2	2	2	2	2	2	2	
1	1	1	1	1	1	1	
A	A	A	A	G	A	A	
G	G	G	G	A	G	G	

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI.	SEC.	Silvertone PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	5800Ω	3-4Ω	80-378	Z1107 ①	A-3026	A-387 ①	24S51 ①	S-6X	① Drill one new mounting hole

SPEAKER

ITEM No	TYPE SIZE	FIELD	V C IMP	Silvertone PART No	QUAM PART No	NOTES
SP1	5"	PM	8-8Ω	79-440 ①	5AIR2.7 ②	① Parallel and phase.
	5"	PM	3-4Ω	79-429 ①	4A07	② Used in Models T22, T125, T123, T124, T131, A, T136
	5"	PM	3-4Ω	79-429 ②	4A07	T172, T173, T130, A, T128, A, T137, T139A
	6"	PM	8-8Ω	79-474 ①		③ Used in Models T122, T123, T133, T124
SP2	6"	PM	8-8Ω	79-440 ①	5AIR2.7 ②	④ Used in Models T14, T15, T16, T17
	6"X9	PM	3-4Ω	79-476 ①	89A3 ①	⑤ Used in Models T120, T121
	6"	PM	8-8Ω	79-474 ①		⑥ Used in Models T130, T81, T192
						⑦ Used in Models T131, A, T136, T172, T173, T130, A, T128, A, T137, T139A

COILS (RF-IF)

ITEM No.	USE	Silvertone PART No.	NOTES
L1	Ant. Trans.	2366-1	
L2	Osc. Coil	528L-4	Channel 5
L3	Osc. Coil	528L-7	Channel 13

ITEM No.	USE	Silvertone PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L5	1st. Video IF	10-39-3				Includes 42.25MC Trap-Note 1
L6	2nd. Video IF	10-9-3				Includes 47.25MC Trap-Note 2
L7	3rd. Video IF	10-10-3				Note 3
L8	Det. Video IF	10-38-3	17-5024			Note 4
L9	Resonant Choke	10-84-1				13 Microhenries
L10	Series Peaking Coil	10-13-1	19-3125		6153	130 Microhenries
L11	Shunt Peaking Coil	10-86-1	19-3250	TV-185	6150	260 Microhenries
L12A	4.5MC Trap	10-81-1				Note 5
B	1st. Sound IF					
L13	Series Peaking Coil	10-10-1	19-4301 *		6154 *	220 Microhenries, wound on 22K resistor
L14	Shunt Peaking Coil	10-87-1	19-4301		6154	
L15	Ratio Det.	10-9-0	17-5498	TV-115	6306	Note 6
L16	RF Choke	33-348				4.7 Microhenries (SRC Part #CLA)

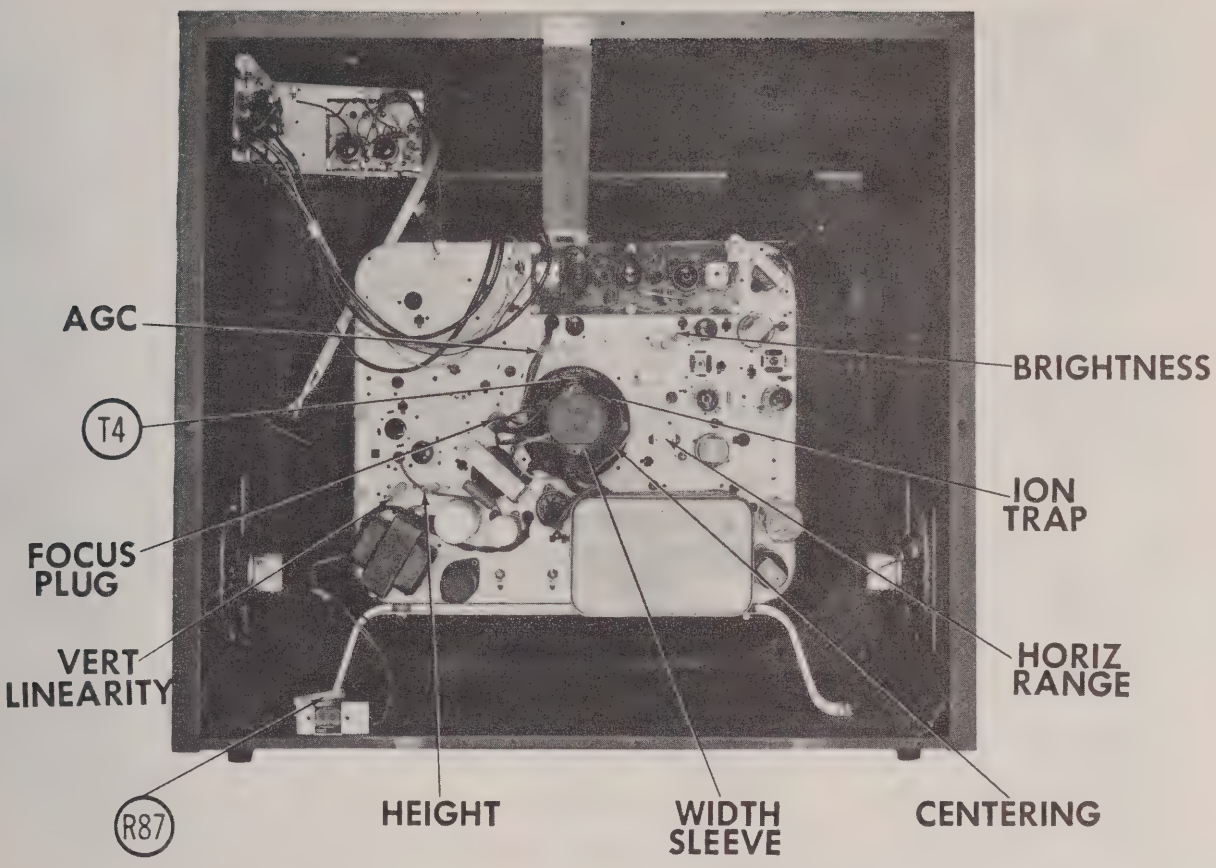
* Parallel with 22K resistor.
Note 1. Some versions use Part #10-9-3 or 10-38-2 in this application.
Note 2. Some versions use Part #10-4-3 in this application.
Note 3 Some versions use Part #10-6-3 in this application.
Note 4. Some versions use Part #10-8-3 or 10-40-3 in this application.
Note 5. Some versions use Part #10-11-0 or 10-41-1 in this application.
Note 6. Some versions use Alternate Part #10-38-1 in this application.

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES PRI	SEC	Silvertone PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No	Ram PART No	Thordarson PART No	NOTES
L17			10-10-1	20-1402	TV-162	6163	205R1	H-100	32S-3	

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	Silvertone PART No	REPLACEMENT DATA	
K1	Vert. Integrator	2000MMF, 5000MMF, 5000MMF, 22K, 820Ω, 820Ω	13-5-0	Aerovox Centralab Erie Sprague	PA-501 PC-104 1405-01 109C13



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

HORIZONTAL FREQUENCY ADJUSTMENT

1. Turn the horizontal range trimmer (B3) fully clockwise.
2. If the picture cannot be synchronized with the horizontal hold control, set the control to the center of its range and adjust the horizontal frequency slug (B1) until the picture is in sync. If the picture will not synchronize, turn the horizontal waveform slug (B2) several turns counter clockwise and adjust B1 until the picture synchronizes horizontally.

HORIZONTAL FREQUENCY ADJUSTMENT FOR SETS WITHOUT HORIZONTAL RANGE TRIMMER

1. Using a normal signal level, set the horizontal hold control fully counter clockwise.
2. Turn the horizontal frequency slug (B1) counter clockwise until the picture is completely out of sync.
3. Turn B1 clockwise until the picture just pulls into synchronization horizontally.

HORIZONTAL WAVEFORM ADJUSTMENT

Connect the vertical amplifier of the scope thru a low capacity probe to point Ⓖ. Low side to chassis. If necessary, adjust the horizontal waveform slug (B2) for a waveform similar to Fig. 3 with the sharp peak 10% higher in amplitude than the broad peak. Keep the picture in sync during this adjustment with the horizontal hold control or B1. Remove the scope connection.

HORIZONTAL RANGE TRIMMER ADJUSTMENT

1. Turn the horizontal hold control fully counter clockwise. Switch off channel and back again. If the picture does not lose sync, turn B1 counter clockwise until the picture loses sync when the channel selector is switched off channel and back again. Adjust B1 until the picture just pulls into sync.
2. Turn the horizontal hold control fully clockwise. Switch off channel and back again. If the picture does not pull into sync, turn the horizontal range trimmer (B3) clockwise until the picture pulls into sync.
3. Due to the reactions between B1 and B3, it may be necessary to repeat steps 1 and 2 several times before proper synchronization is obtained. When properly adjusted, the picture should remain in sync at either extreme setting of the horizontal hold control when switching off channel and back again.

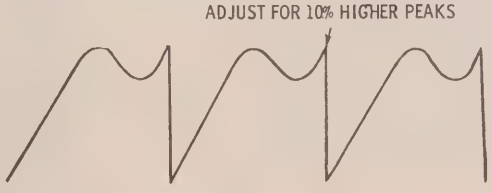


FIG. 3

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT (Measured)	Silvertone PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	
M1	.235	83-829 ①	1090A ①	1N1007 ②	RS300SL ①	6S300 ①	300 ①	
M2	.235	83-829 ①	1090A ①	1N1007 ②	RS300SL ①	6S300 ①	300 ①	

① Selenium type. ② Germanium type.

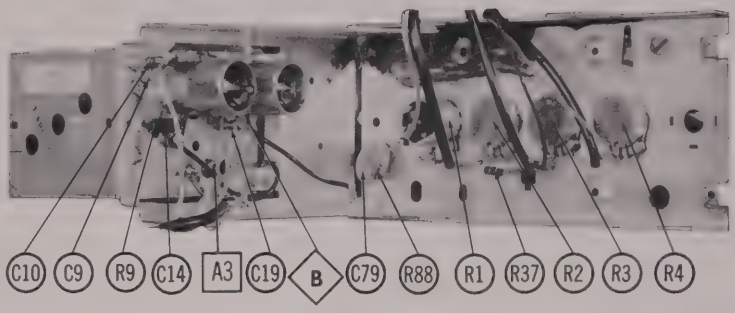
MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
M3	Pilot Light	89-7	#47
M4	Tuner	95-87	VHF (Sarkes Tarzian TT26SB) Ch. 528.51000, 01 20, 21, 22, 23
	Tuner	95-90	UHF-VHF (Sarkes Tarzian UV15A2) Includes UHF Tuner Part #95-93 and VHF Tuner Part #95-91 , Ch. 528.51010, 11, 30, 31, 32, 33, 34
	Tuner	95-122	UHF-VHF, Includes UHF Tuner Part #95-124 and VHF tuner Part #95-123 , Ch. 528.51210
M5	Width Sleeve	83-962	Ch. 528.51000, 01, 10, 11
	Width Sleeve	83-1052	Ch. 528.51020, 21, 22, 23, 30, 31, 32, 33, 34, 528.51210
M6	Centering Device	83-936	Includes yoke rear cover, Ch. 528.51000, 01, 10, 11
	Centering Device	83-1034	Includes yoke rear cover, Ch. 528.51020, 21, 22, 23, 30, 31, 32, 33, 34, 528.51210
M7	Ion Trap	83-830	
	Printed Panel	D13-24	Video IF

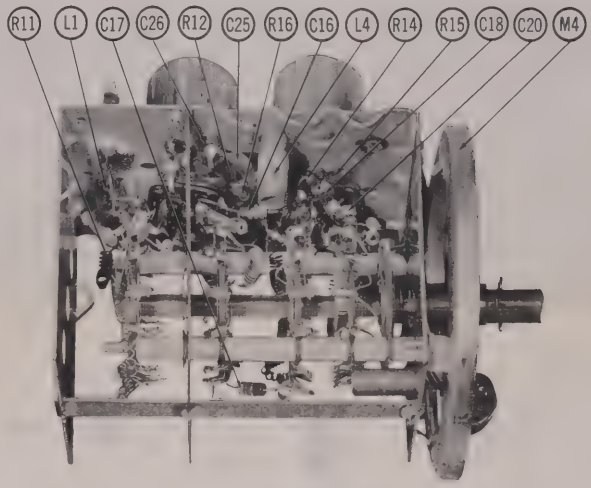
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

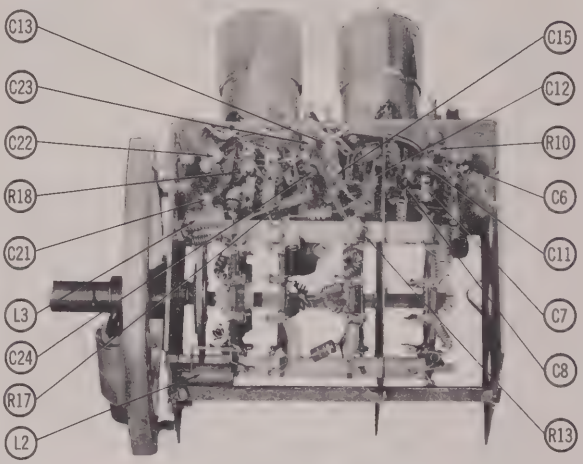
NAME	PART NO.	DESCRIPTION
Safety Glass	48-117	Tinted - Models 7114, 7115 , 7116, 7117, 7128, 7128A, 7129, A, 7130, A, 7131, A, 7136, 7137
Safety Glass	48-118	Tinted - Models 7122, 7123, 7124, 7125, 7172 , 7173, 7190, 7191, 7192
Safety Glass	48-119	Tinted - Models 7120, 7121
Mask	31-340	Models 7114, 7115, 7116, 7117, 7128, A, 7129, A, 7130, A, 7131, A, 7136, 7137
Mask	31-342	Models 7122, 7123, 7124, 7125, 7172, 7173, 7190, 7191, 7192
Mask	31-348	Models 7120, 7121
Knob	52-587	UHF Channel Selector - Models 7115, 7117, 7123, 7125, 7129, A, 7131, A, 7137, 7173, 7191
Knob	52-680	UHF Channel Selector - Model 7121
Knob	52-687	VHF Channel Selector - Models 7115, 7117, 7123, 7125, 7129, A, 7131, A, 7137, 7173, 7191
Knob	52-678	VHF Channel Selector - Model 7121
Knob	52-684	VHF Channel Selector - Models 7114, 7116, 7122, 7124, 7128, A, 7130, A, 7136, 7172, 7190, 7192
Knob	52-677	VHF Channel Selector - Model 7120
Knob	52-588	Fine Tuning - Models 7115, 7117, 7123, 7125, 7129, A, 7131, A, 7137, 7173, 7191
Knob	52587	Fine Tuning - Models 7114, 7116, 7122, 7124, 7128, A, 7130, A, 7136, 7172, 7190, 7192
Knob	52-665	Fine Tuning - Model 7121
Knob	52-679	Fine Tuning - Model 7120
Knob	52-633	Brightness - All versions
Knob	52-683	Control - All versions except Models 7120, 7121
Knob	52-708	Contrast - Models 7120, 7121
Knob	52-709	Vert. Hold - Models 7120, 7121
Knob	52-710	On-off-volume - Models 7120, 7121
Knob	52-711	Horiz. Hold - Models 7120, 7121
Knob	52-702	On-off-volume & Radio-Phono - Models 7190, 7191, 7192
Knob	52-703	Tuning & tone - Models 7190, 7191, 7192
Indicator	52-689	UHF - All UHF versions except Model 7121
Indicator	52-676	UHF - UHF Model 7121 only
Dial Scale	67-611	Radio - Combination Models 7190, 7191, 7192
Cabinet	42-830	Mahogany - Models 7114, 7115
Cabinet	42-831	Limed Oak - Models 7116, 7117
Cabinet	42-824	Brown - Models 7120, 7121
Cabinet	42-825	Mahogany - Models 7122, 7123
Cabinet	42-826	Blonde - Models 7124, 7125
Cabinet	42-834	Mahogany - Models 7128, 7129
Cabinet	42-18-0	Mahogany - Models 7128A, 7129A
Cabinet	42-835	Blonde - Models 7130, 7131
Cabinet	42-19-0	Blonde - Models 7130A, 7131A
Cabinet	42-856	Maple - Models 7136, 7137
Cabinet	42-839	Mahogany - Models 7172, 7173
Cabinet	42-851	Mahogany - Models 7190, 7191
Cabinet	42-852	Blonde - Model 7192



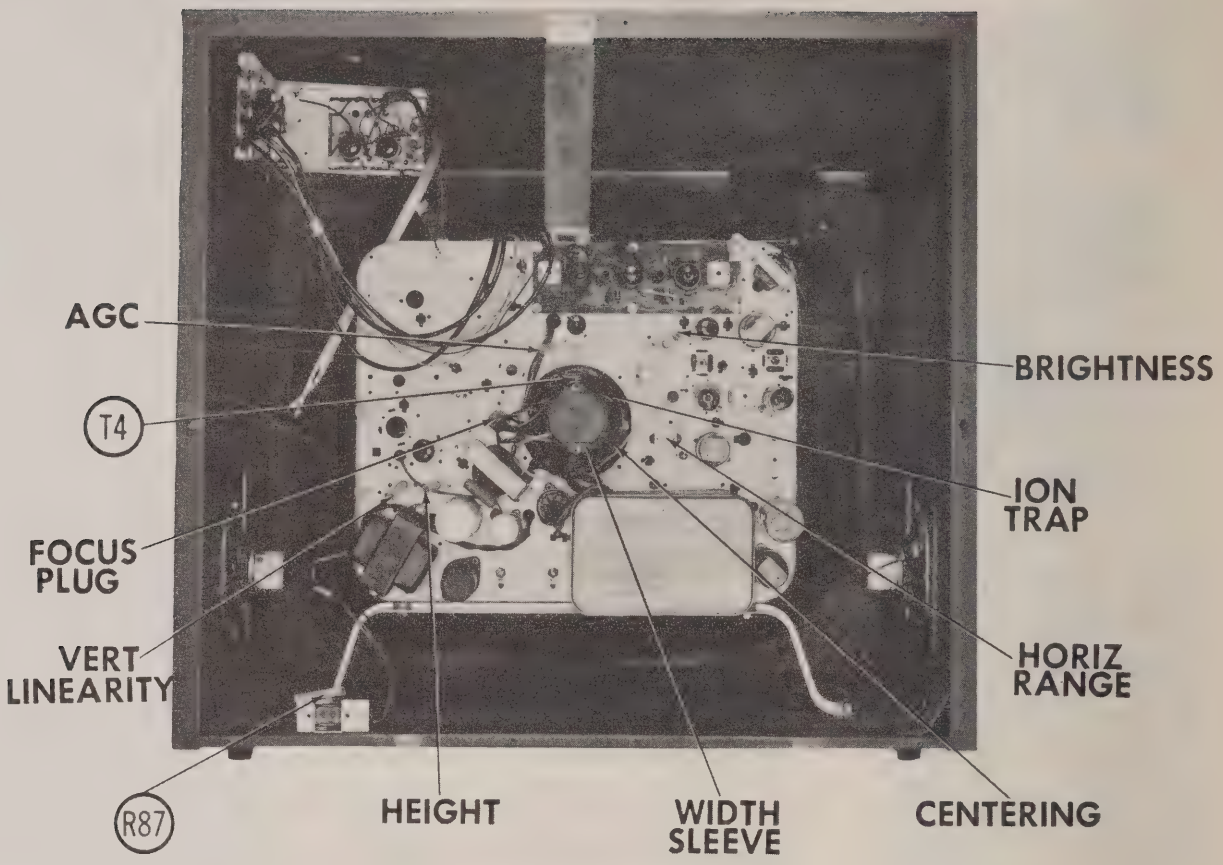
RF TUNER & CONTROL PANEL



RF TUNER-RIGHT SIDE



RF TUNER-RIGHT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

HORIZONTAL FREQUENCY ADJUSTMENT

1. Turn the horizontal range trimmer (B3) fully clockwise.
2. If the picture cannot be synchronized with the horizontal hold control, set the control to the center of its range and adjust the horizontal frequency slug (B1) until the picture is in sync. If the picture will not synchronize, turn the horizontal waveform slug (B2) several turns counter clockwise and adjust B1 until the picture synchronizes horizontally.

HORIZONTAL FREQUENCY ADJUSTMENT FOR SETS WITHOUT HORIZONTAL RANGE TRIMMER

1. Using a normal signal level, set the horizontal hold control fully counter clockwise.
2. Turn the horizontal frequency slug (B1) counter clockwise until the picture is completely out of sync.
3. Turn B1 clockwise until the picture just pulls into synchronization horizontally.

HORIZONTAL WAVEFORM ADJUSTMENT

Connect the vertical amplifier of the scope thru a low capacity probe to point ⏚. Low side to chassis. If necessary, adjust the horizontal waveform slug (B2) for a waveform similar to Fig. 3 with the sharp peak 10% higher in amplitude than the broad peak. Keep the picture in sync during this adjustment with the horizontal hold control or B1. Remove the scope connection.

HORIZONTAL RANGE TRIMMER ADJUSTMENT

1. Turn the horizontal hold control fully counter clockwise. Switch off channel and back again. If the picture does not lose sync, turn B1 counter clockwise until the picture loses sync when the channel selector is switched off channel and back again. Adjust B1 until the picture just pulls into sync.
2. Turn the horizontal hold control fully clockwise. Switch off channel and back again. If the picture does not pull into sync, turn the horizontal range trimmer (B3) clockwise until the picture pulls into sync.
3. Due to the reactions between B1 and B3, it may be necessary to repeat steps 1 and 2 several times before proper synchronization is obtained. When properly adjusted, the picture should remain in sync at either extreme setting of the horizontal hold control when switching off channel and back again.

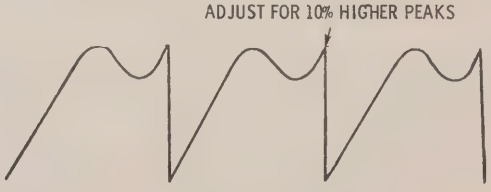
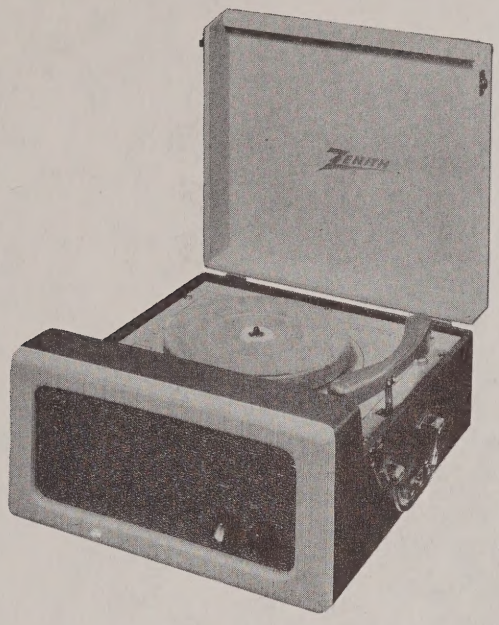


FIG. 3

ZENITH
MODEL YP7L

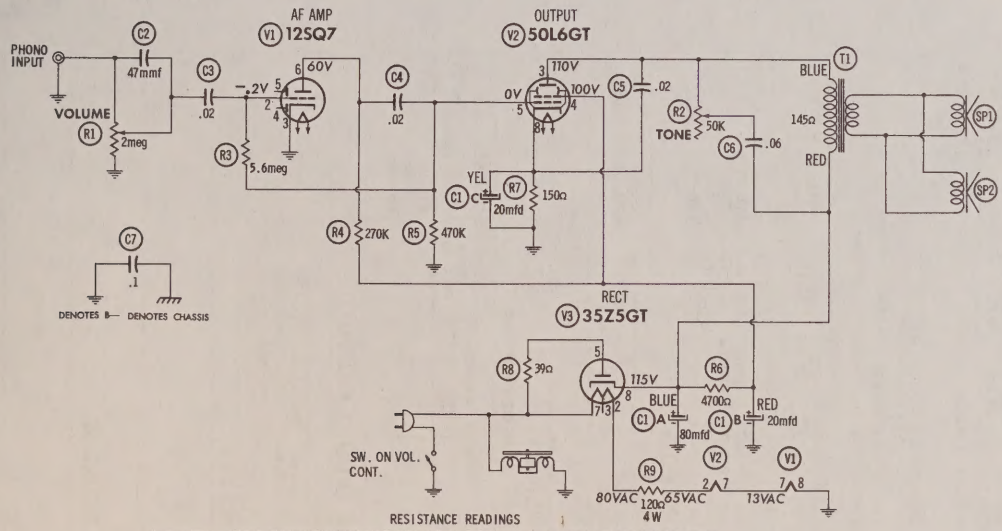
ZENITH
MODEL YP7L



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ZENITH
MODEL YP7L

TRADE NAME	Zenith Model YP7L
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Manual Record Player
TUBES (Three)	Types 12SQ7 AFAmplifier, 50L6GT Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .25 Amp. @ 117 Volts AC



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12SQ7	NC	6Meg	0Ω	NC	NC	†275K	15Ω	0Ω
V2	50L6GT	NC	65Ω	†145Ω	†4700Ω	470K	NC	15Ω	150Ω
V3	35Z5GT	NC	185Ω	200Ω	NC	260Ω	NC	220Ω	20K(MIN)

† MEASURED FROM PIN 8 OF V3
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1957

368-15

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12SQ7	
V2	Output	50L6GT	
V3	Rectifier	35Z5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	WC12145	AFH3-82	BBRQ53215C	WQ230	TML-1	FMT-333	TVL-3431.5
B	20	150							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	47		22-2466	SI 47	D6-470	TP29	GP-47	UC-5447	5GA-Q47	
C3	02	200	22-2161	BPD-02	DD-203	CUB2S2	ED-02	GEM-412	2TM-S2	
C4	02	200	22-2161	BPD-02	DD-203	CUB2S2	ED-02	GEM-412	2TM-S2	
C5	02	200	22-2161	BPD-02	DD-203	CUB2S2	ED-02	GEM-412	2TM-S2	
C6	06	200	22-1744	P688N-06		CUB6S6		GEM-616	6TM-S6	
C7	.1	200	22-2780	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2Meg	½	WC11512					Volume & Switch
R2	50K	½	WC11507					Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R3	5.6Meg			BTS-5.6Meg	
R4	270K			BTS-270K	
R5	470K			BTS-470K	
R6	4700Ω			BTS-4700	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R7	150Ω			BTS-150	
R8	39Ω			BTS-39	
R9	120Ω	4		PW4-150	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	1.6Ω	WC11876	Z1101	A3025	A-3332	26S58 ①	S-12X	① Drill new mounting hole.

SPEAKER

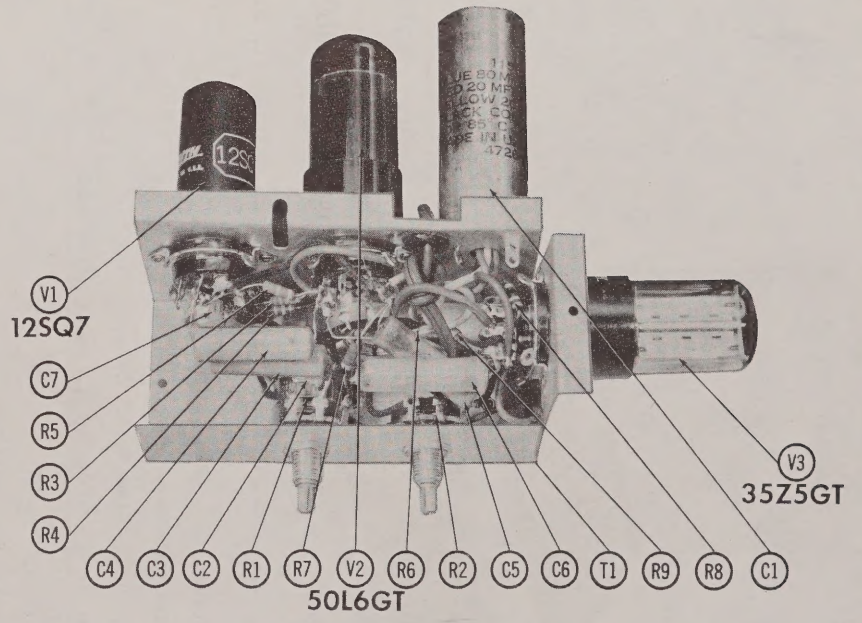
ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	WC11792	4A07	
SP2	4"	PM	3-4Ω	WC11792	4A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	148-82	55-T * P55-T	GD-J	56 * 2756	PT-2	* Complete tone arm and cartridge assembly.

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	56-360	* A-72 or † A-71 or ♦ A-71D	† W8TPS or ♦† W8DS or ♦ W8TPD	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
	Case	WC12146	Includes Hardware, Less Motor Board & Amp. Panel
	Handle Assy.	WC12044	
	Knob	WC12135	Tone, On-Off-Volume